THE CALIFORNIAN.

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LOS ANGELES.

By Hon. E. F. Spence.

CALIFORNIA is new: there is nothing specially old about it; were it so we would have no hopes of its ultimate unparalleled prosperity. The fact that it is new inspires us with the hope, and imparts to us a faith, that ere long the State will stand out prominently as one of the most favored countries of the earth.

Biblical lands, as Egypt, Assyria and Palestine, and cities as Jerusalem, Damascus and Nineveh, are old and worthless, and by the discriminating hand of a marching civilization are cast aside, as the intelligent blacksmith throws the dross of his forge into the waste-pit. India and China are old, exceedingly old, and as a consequence are shunned by the adventurous modern as he wanders up and down through all lands, seeking a place where he may make a happy home. Even Europe, some portion of which we claim as "mother country," is becoming worn out and exhausted. Her soil is now and will in the coming years be more and more unable to respond to the demands of an increasing population.

To the close observer of to-day the signs of incipient decay are seen on every hand, and like a panorama, while we are gazing upon wasted and exhausted fields, there come into view monuments, castles, cathedrals and towers; works which the builders of the past deemed indestructible, gradually crumbling away. While we thus contemplate the condition of the older countries, we in turn naturally bring our thoughts to our own or the newer land.

The eastern portion of the continent, from Canada to Mexico, is slowly but surely losing a percentage of the people whose business has been to cultivate the soil. The emigrating trend of the American farmer is westward, and a deplorable fact is apparent that there is a growing tendency among the people to congregate in the cities. The inhabitant of a city rarely contributes much to the genuine wealth, sturdy growth or healthful advancement of a nation, while, on the other hand, the honest, intelligent tiller of the soil is the main-stay, the prop, the true supporter of the whole country, and woe betide that land and that people which do not fully appreciate and hold in proper regard the cultivators of the soil. As from the earth we sprung, to it we shall return, and, by its proper use, from it all good things are derived. The progressive farmer of to-day (and by the term farmer we include those engaged in all branches of soil culture) asks himself the questions: Where can I find a land that is profitable to live in; a soil that will yield me the largest returns for the least labor; a community refined and cultured, with educational

The Old Los Angeles Round Tower.

facilties of the first order, where wife and children will be happy and contented? And many other queries of a like nature will pass through his mind; and should he in his wisdom decide to make his home in Southern California, and more especially at or near Los Angeles, we believe that his heritage will be goodly and his lines fall in pleasant places. Our reasons for so believing may be briefly stated:

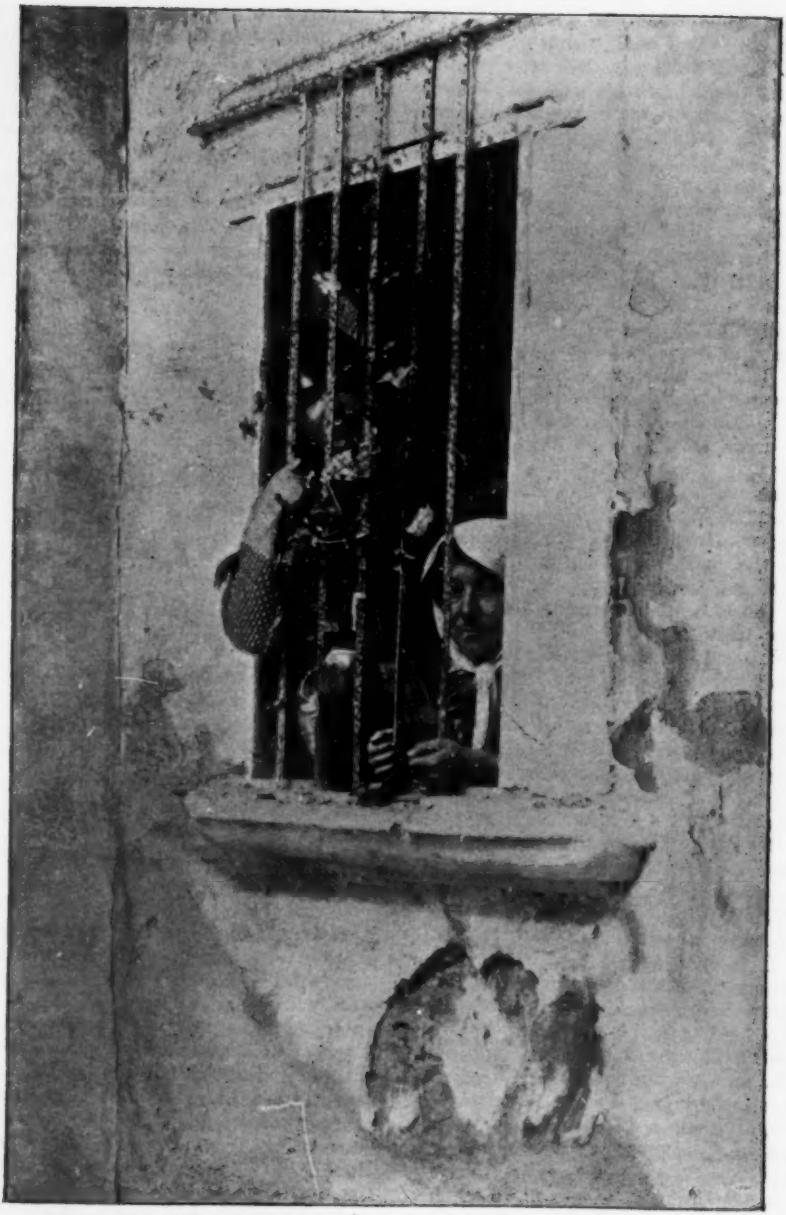
The design of this paper is not to be statistical, historical or personal; rather to reflect in a plain way the thoughts that occur to the mind of one who, in early life, untrammeled by the prejudices of section, politics or caste, sought and reached the coast of California with a fixed intention of making a home, taking all the chances of a pioneer life in a new country; and who has since crossed the American continent upon the various lines of travel from the Pacific to the Atlantic, from the extreme northern route—the Canadian Pacific, to the extreme southern—the Sunset; one who has crossed the Atlantic many times and observed the conditions of men and their home life in the intense rigors of Northern Scotland; the squalid wretchedness in Western Ireland; the stolid doggedness of the laboring classes of England; the careless and unambitious life of the French peasant; and the meek submissiveness of the natives of the Lowlands of Europe, where the man or the woman may be seen yoked with the donkey or the dog in harness drawing the same cart.

It is by making comparisons that we arrive at correct conclusions. Now the question arises, Is California really the best country for an industrious man to select for a permanent home? The writer would reply in the affirmative, and by giving satisfactory reasons would draw a picture for the mind's eye of this, the land of his adoption and choice. We have said that the country is new, for it is less than three hundred and fifty years since the first European saw what is now the coast of Los Angeles county.

Only a few hundred years ago the California Indian had no one to dispute his title, or rob him of his heritage, or drive him to an early death by disease unknown to the aborigine. He roamed at will through the mountains, over the great plains, and sometimes camped by the shores of the great sea. Doubtless at times his spirit was as wild and as rugged as the mountains, and again may have been as gentle as the summer breeze that swept over his native plains; but the white

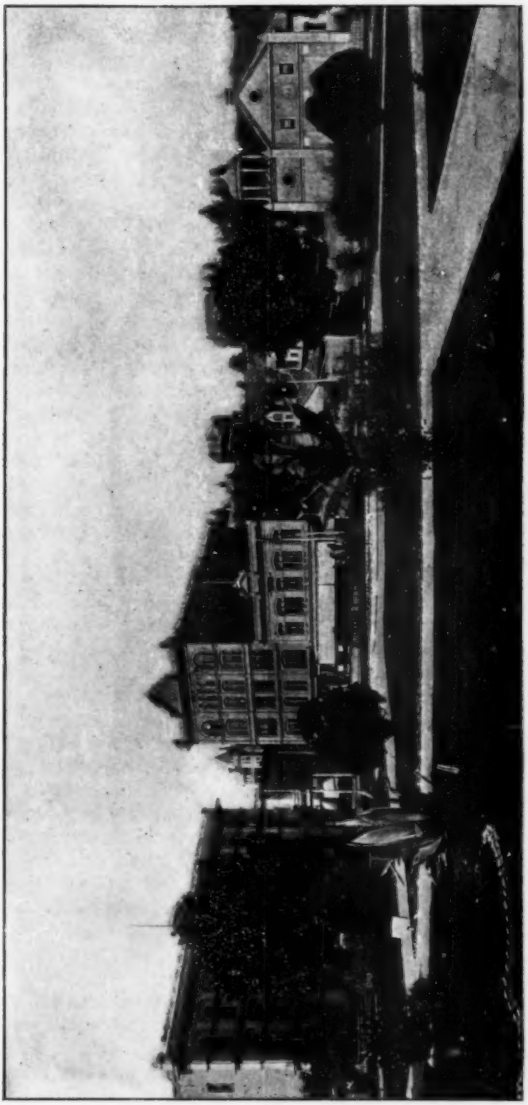
Chinese Lantern.

men came one by one. A ship filled with exploring adventurers and pirates reaches the coast. A sailor deserts, and still a few more leave the ship before she sails away. As it is an era of adventure and piracy other ships come coasting along, and thus gradually did the white men of Europe find a lodgment on the coast. It is pleasant to trace the van of civilization from the time the first European (a Portuguese) landed upon the Southern Californian coast until now, and watch the trend of the times. Then a sailor stood upon a cliff, and as his eyes scanned the plains and dis-



A Window in the Mexican Quarter. Photo. by Taber.

tant mountains, little did he dream of the riches that were hidden within the range of his vision. Not long afterward we hear of the Mission Fathers wandering unselfishly up and down the coast endeavoring to civilize, in some degree, the savages, and teach them, and tell them that there is a God in Heaven; and I wish to add a tribute to the memory of these men who first came at the risk of their lives to plant in California the banner of the Cross, the emblem of peace and good will to all, and by whose influence the wild man was comparatively tamed and taught to do a little work, no matter how crudely.



Plaza of Los Angeles.

Later on, as people came and increased, we find an admixture of races—Spanish, Mexican, natives, and traces of the Northern European—making a population of hardy men and women. The topography of the country, coupled with its climate, made it necessary for both sexes to be adepts at horseback riding. These people lived a somewhat nomadic life, as they owned flocks and herds and gave little attention to the cultivation of the soil. Some of the early American settlers in Southern California assimilated in a great degree with the natives, and made no attempt to develop what nature had so profusely strewn around them.

The political or governmental transitions from Spain to Mexico, and from Mexico to the United States, were of vast importance; and, considering the extent of the territory acquired and the immeasurability of the influences of such acquisitions upon the world at

An Old Adobe in Sonoratown.

large, it is one of the great wonders that the battles fought upon the soil have been almost bloodless. There has been no specially remarkable incident in her history, such as a Sedan or a Waterloo, to record.

About forty years ago some little sign of progress was given, as seen in the planting of a small area to citrus fruit trees and grape vines, and sending abroad for plants, seeds and shrubs of various kinds.

Owing to a natural growth, which at first was imperceptible, but later on was increased by the rapid advancement made by the northern portion of California, the cities of the South—Santa Barbara, Los Angeles, San Bernardino and San Diego—some twenty years ago began to attract, not only the attention of the American people, but the people of other countries, and a quiet, intelligent investigation has been going on since then. To the credit and profit of these cities and their environments, it may be said they have stood their examination well, and to-day they stand forth as solid, rich and progressive American towns and communities, with prospects as bright as is possible to be.

I wish to speak now more particularly of Los Angeles, the second city of California; and while I pay her a tribute, it will not detract an iota from the other and younger cities that are looming up richly, energetically and ambitiously. Ten years ago Los Angeles was still in a transition state, emerging from the old into the new order of things. Occasionally pretentious residences might be noticed, taking the places of the lowly yet comfortable adobe ones, where large and happy families were reared.

New streets were making where a little while before there were footpaths and tortuous windings around the rolling hills. Attempts were being made to have streets paved which were no better than common country roads. School-houses were being erected far in advance of those previously used. Members of the various religious denominations were considering the question of building churches, metropolitan in proportions and style. Owners of eligible business lots were arranging to cover them with respectable-looking buildings. Proprietors of suburban properties were cultivating and improving them, and the large landholder was actually rubbing the scales from his eyes, and his brain, that had long lain in lethargy, was becoming awakened. Some of the people were acting, some were thinking, while others were thinking it would be a good thing to act. Nearly all seemed imbued with the central thought that Los Angeles would ere long make a tremendous bound forward, owing to her proximity to the sea, her commanding position in the interior, her geographical place upon the railroad maps of the coast, her rich surroundings, and, above all, she had a certain class of citizens who believed in her future greatness, and were willing to exert all their powers to make her great and prosperous.

At this time many of the fine old adobes and ranches, that have since been torn down to make way for the onward march of progress, were in their prime, and the old round house stood to excite the wonder of the tourist. Sonoratown, that now is a mere curiosity, was then an important portion of the city and the home of many of the aristocrats among the Spanish inhabitants. To-day Sonoratown is one of the sights of Los Angeles; the artists find the old adobes picturesque, and in them many quaint objects are found, telling of the old days.

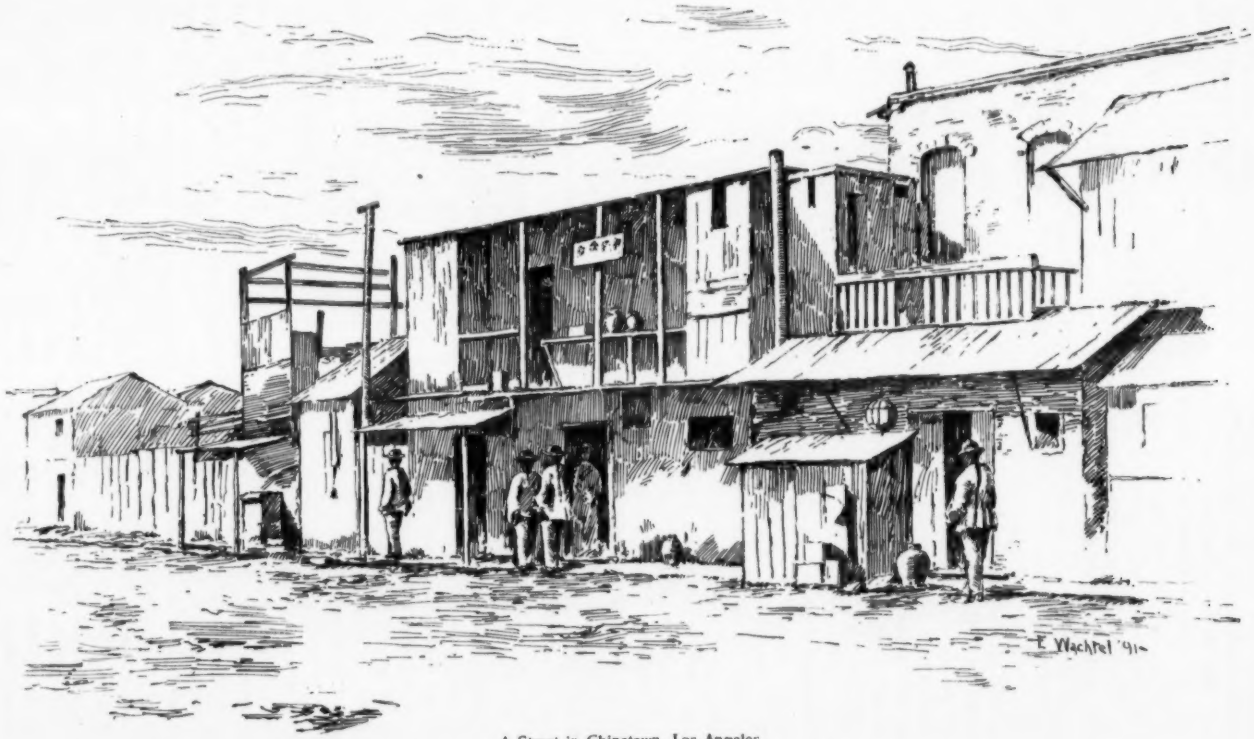
The above is only a meagre outline of the condition of things as they existed in 1880, when the United States census developed the fact that Los Angeles city had less than 12,000 inhabitants. The census of 1890, as enumerated by wards, gives us a population of over 50,000 within our city limits, while the solid suburbs extend in some directions far beyond those limits. It is not an unfair estimate to say that to-day, 1891, Los Angeles contains 60,000 people.

What shall we say of her present

position? What shall we say of her destiny? It were idle to attempt in a limited paper like this to describe the beauties and the advantages of Los Angeles city and county. It would be unfair to the reader to present anything that would even seem to be inspired by the spirit of booming or advertising, yet the factors that go to make the city and county so prosperous and so great are so many that a few only can be utilized.

To the stranger who leaves the East in mid-winter and glides down through the canyons into this summerland the change is marvelous. He finds a city in the center of a district calling to mind Italy; yet though the winter day is cool and crisp, and on some mornings a slight frost is seen, everywhere the land is green; the hills are carpeted with delicate tints of green and gold, the fields rich in growing grain, while after Christmas the wealth of wild flowers astonishes the beholder. Entering Los Angeles he finds a modern city, buildings that would be a credit to any city of the East; yet there is something strange about it all. It is the verdure that is tropical in all the term implies; every yard has its palms, bananas or other tropical trees and plants; tall palms catch the eye at various points. Here in an old-fashioned garden [see frontispiece] a lofty date palm rears aloft its graceful leaves, while its sturdy trunk is being covered by the clinging ivy, making it a most attractive spectacle, appealing to the lover of the picturesque and artistic. The streets abound in the graceful pepper, whose lace-like leaves and red berries are a characteristic and beautiful feature. Here the tall eucalyptus rears its plume-like form, while as for roses, Los Angeles is a bower. These gorgeous flowers creeping over the cottages of the poor and the mansions of the rich are suggestive of the prodigality of nature in this direction. The flowers blooming in midwinter, the rose hedges, fences of callas and other plants, that are treasures of the hot-house in the East, suggest a word as to the Los Angeles climate. To explain this so that it can be understood is most difficult, and it can be only said that the term winter here is a misnomer. True, it becomes cold; the peaks of the mountains are capped with snow and the mornings and evenings are cool; a roaring fire is often pleasant and an overcoat in the morning and evening is sometimes needed; yet in the Los Angeles garden the most delicate flowers are blooming, the garden vegetables are untouched. The winter is one for outdoor life, where the temperature rarely reaches the freezing point; the air is crisp and cool, a season of delight with nature at her best. Now is the time of rain, the storms coming upon an average once in two or three weeks, giving an average of twenty inches for the year. There is about fifteen degrees between the mean of winter and summer, an important point, telling of the lack of sudden change, that is so detrimental to the invalid. The best evidence that the Los Angeles winter is a remarkable one is shown in the hundreds of invalids who have come here and are distributed around the country in the various towns, enjoying the health lost in the East, but here regained.

Winter melts imperceptibly into summer—the dry time; the hills become gray, yet a crop of summer flowers appear in the fields and on the roadside, and the vineyards are now waves of green-bearing acres; the orange groves, the olive and the deciduous fruit trees are all rich in greens, hence the country, to a great extent, preserves its green tint here the year around. Warm days are experienced, but Los Angeles never suffers from the heat that is experienced in New York, Philadelphia or Chicago. During the summer months the thermometer ranges to lofty heights at rare intervals, yet in the shade it is usually cool and pleasant, and the nights are invariably so. Through the summer days a cool breeze comes in from the ocean, while at night a wind, soft and tinctured with the odor of upland pines, flows down from the lofty Sierra Madres, a life and health-giving tonic.



A Street in Chinatown, Los Angeles.

The stories of the old adobe town, the establishment of the Mission, the rule of the Mission Fathers, the conversion of the Indians, the battles between the natives and the gringoes, and the final surrender and adhesion to the United States, have been so often told that repetition is unnecessary. The reckless rollicking of the gay and daring Californian, his fandangoes, his wild horse racing and bull fighting are things of the past in Los Angeles. Certain activities incident to surrounding conditions tended to develop physical strength and endurance in horse and man, yet the necessity for such tests has, in a measure, ceased, and the old has given place to the new.

The inquirer asks how and why the change? In attempting to explain and reply we are forced to moralize a little. An aggregation of intelligence, modern "push" and unrest will generate a subtle power which will develop an intellectuality superior to any yet known. This power will be controlled by a liberality of thought and sentiment, a genial forbearance and toleration combined with a fixed and steady purpose to reach the acme of human achievements. The bright skies, the balmy atmosphere, the profuse productiveness of the soil and the all-pervading healthfulness of the surroundings tend to enlarge, broaden and deepen, not only the emotions and tender chords of humanity, but surely strengthen the main-spring of individual action, exertion and determination, thus imperceptibly fitting the mind of the South Californian to be the true living receptacle of that moral and scientific force, yet partly latent, but sure to be developed ere long with astonishing power.

In our new Southwest even at the present time are found the forerunners of a wonderfully intellectual epoch. The course of the Star of Empire, civilization and population, has long been toward the West; but here on the bosom of the broad Pacific that star fades away, and here upon its shores the typical pioneer, the explorer, the scientist and the progressive American must stop because they can go no further. There is no field for them to the north or to the south, and backward they will never go. It does not require the ken of a prophet to foretell the result of the occupancy of a country by such a people. When cultured thought flashes against thought and cultivated mind against mind, the cobwebs of the past and the rust of the ages will soon disappear.

A single glance at a sign, somewhat conspicuous now, justifies the query, Will not the great seats of learning within the next quarter of a century be found upon the Pacific coast instead of the inhospitable shores of New England? And will not Los Angeles be a centre of advanced thought and progressive ideas, and in the mutations and revolutions of time will there not be a transference of the "Hub" from Boston to some city in the new Southwest, where the apple and the banana grow and mature side by side, where the tuberose, the calla and the heliotrope are unscathed by frost and the air is redolent with the fragrance of the magnolia and the orange blossom?

While the new Southwest already has gained a reputation world-wide for its unprecedented crops, the unbounded fertility of the soil and its almost unlimited capacity to support millions of people, and having all the elements to make an empire, still it will be more reputed as a country of commanding mind. Were speculation permissible here we might prognosticate the future of the city of Los Angeles; yet we prefer to leave that thought to the reader by suggesting that to-day she stands forth proud and peerless as the first city of the southwest, the second in all California. Her churches, schools and marts of trade would be a credit to any city. Her private buildings, streets and street railroads, horse, cable and electric, are fully abreast of the times.

The city hall and court-house are marvels of architectual beauty, and superior to those of any city west of the Rocky mountains. In former days

the principal part of the city was about the old plaza, upon which the Pico house and Mission fronted, and now in close proximity to Chinatown; but the city of to-day seems to be reaching out toward the sea; its suburbs being many miles to the south and west, containing fine avenues, magnificent residences, and many public parks

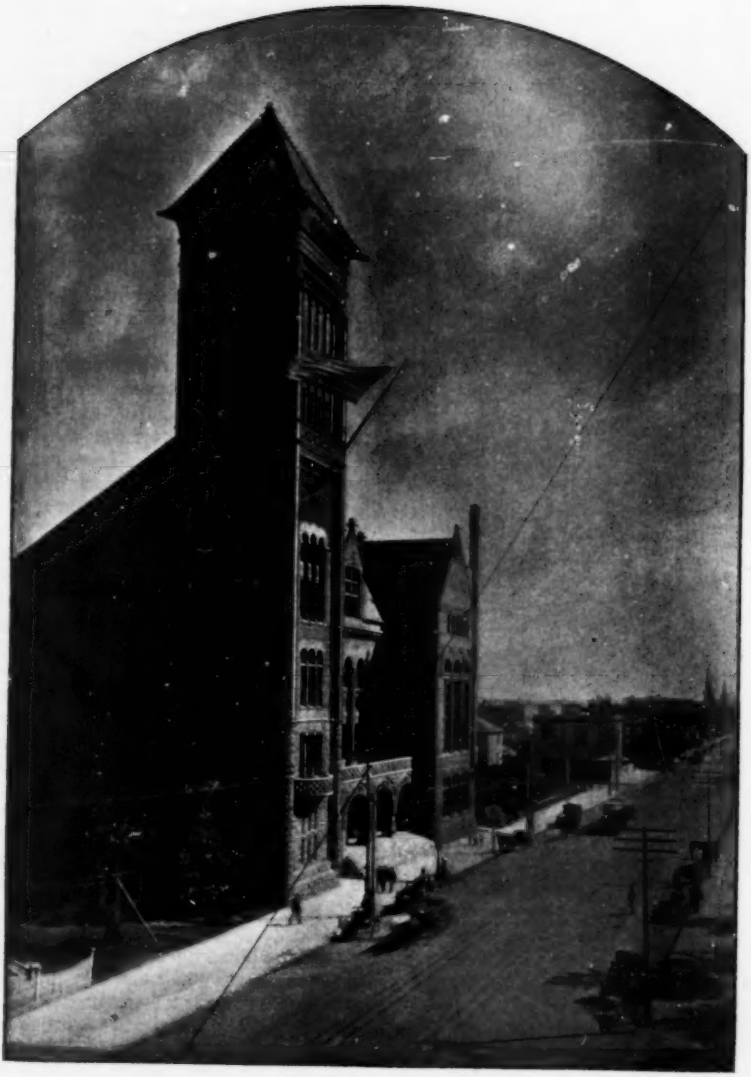
The Chinese Theatre.

that are fast becoming places of great beauty and interest.

As to the character of the people, the builders of the city, they can only be judged by what they have done, what they are doing and what they will do in the future. The residences of some of the citizens have already crossed the hundred-thousand dollar line.

While the great transcontinental railroad lines make Los Angeles an objective and terminal point, it would seem to be specially desirable for the merchant and the trader; yet to the lover of the beautiful a rare field is open. The mountains, hills, plains, valleys, vineyards, orchards and groves present a varied landscape that pleases the æsthetic eye, and on every hand elegant mansions are appearing, testifying to the enterprise and culture of the people. Los Angeles is essentially a city where the ideal home can be made. Nature is here at her best and in a few short months a home can be produced that the visitor would suppose had been years in attaining such perfection. Reaching out from the city on every hand are beautiful towns and suburban cities, as Alhambra, Pasadena and others, made up of the elegant homes of a cultured people.

Los Angeles is destined to become one of the most important railroad centers on the continent; the two great overland routes, the Atchison, Topeka and Santa Fe and the Southern Pacific now meet here, and rumors are in the air of other roads. From the city proper and its suburbs many lines reach out their network of steel, tapping the points of interest in the immediate vicinity. Los Angeles is but seventeen miles from the Pacific, where are found numerous resorts of great beauty, as Redondo, Santa Monica, Long Beach, San Juan, San Pedro and others, all reached by rail, many times a day. Turning to the mountains or the interior we find equal facilities. The Atchison, Topeka and Santa Fe extends through the San Gabriel Valley, reaching the towns of Pasadena,



Los Angeles City Hall.

Monrovia, Sierra Madre, Pomona, Ontario. A rapid transit line reaches Pasadena, then deflecting to the highlands of this city, known as Altadena, from which a mountain railroad is contemplated, taking the tourist to the summit of the Sierra Madre Mountains, where one may look down upon the City of the Angels as from a balloon.

The Southern Pacific Road extends through the lower San Gabriel, tapping important towns and cities; the Atchison, Topeka and Santa Fe with its new coast line carries the passenger from Los Angeles to the sea, skirting the Pacific and affording one of the most attractive trips in the country, reaching down into Lower California and San Diego. To the north another line carries the traveler through a country that calls to mind Italy and the choice resorts of the Mediterranean, reaching Santa Barbara and beyond, and finally to connect with the route that is reaching down from the north, making one of the finest coast and scenic roads in the world.

The seeker after climate is informed that people attain to greater age in this vicinity than anywhere else; at least such is the substance of a very learned and elaborate paper read in Los Angeles at the last annual meeting of the State Medical Society. The lover of adventure will also find congenial and inviting haunts, as in an hour's time he can reach the Sierra Madre range and plunge at once into the fastnesses of the mountains where the bear, the deer and the California lion are still roaming at large; and in two or three hours' time can visit the headwaters of the Sespe or Piru and introduce himself to the California grizzly. But above all, should this new Southwest be the "Mecca" of the honest, industrious working man who, by rightly employing his time, will soon find a home where he can live happily and contentedly with wife, children and friends, because nowhere else in the world is labor more generously rewarded or the intelligent tiller of the soil receives a readier or richer recompense. It is emphatically a land of "Corn, Wine and Oil," and while we thus speak of the benedictions received by us from the earth, we must not forget the great boon accorded to us by the distillations of heaven. The water that can be utilized is sufficient for all purposes to furnish power for electricity, for machinery and for irrigation. In fact, the advantages of a constant and ample water supply never can be estimated.

The mountain range that encircles the valley in which Los Angeles is situated, from the Tejunga on the west to the San Antonio on the east, is full of small, never-failing springs of pure water; and as the northern slopes of the range are covered almost with perpetual snow, we are assured of the permanency of as pure and delicious water as ever gushed forth from mountain's brow. In this range are located three great watersheds, the Los Angeles, the Santa Anita and the San Gabriel, which afford an ample supply to irrigate every acre from the mountain to the sea, and here is where the intelligent laborer and the scientist will be called upon to display some of their powers, in husbanding the resources placed within our reach by a beneficent Creator.

We have said that on this coast there will be the greatest strides in all those things that tend to make men better, and to push on the power of progress that the world has ever known. We believe it, but the coming generations must determine its truth or falsity.

Ἀνάγκη.

By Charles F. Lummis.

SHIRKING the eye of the desert skies
Under a juniper's sprawling shade,
Weathered and shaggy and swart he lies,
To sleep by the desert's breath betrayed.

The sun stabs down thro' a lonely rift
In fickle boughs to the sleeper's lids;
Their brown turns red, and the red as swift
Puffs livid grey where the hot brand bids.

The dull nerves nudge at the sleeping brain,
The slow brows knit to a sullen knot
As slumber limps with the load of pain
And rallies sense to the burning spot.

He cheats the sun with a stupid hand,
Groans, sits him up in the glare that blinds,
Nor hears the *h-h-h* of the warning sand
As a lazy length from the cactus winds.

Cursing the glare that has wakened him—
Wakened in time, if he could but know!
But ears are dullard and eyes are dim,
And Fate is pulling her puppet so.

Left-handed groping—ask Fate for why—
He reaches back for his fallen hat;
And death, that hurtless had passed him by
Had the right hand reached, is his share for that.

That slow S flirts to a mortal Q,
The castanet for the death-waltz plays,
The fist of a head unclenches to
A bony palm for the slap that slays.

A flash—a howl—and the smouldering brain
Flares up into white intelligence;
"My knife! But God! *It is in the vein!*"
And brute despair is the heir of sense.

Shrieking and cursing with lips that swell,
Raving and trampling his writhing fate,
His heels instinct with the rage of hell,
Each answering bite but a spur to hate.

Two thin, dark streams from his nostrils break;
He staggers—the ghastly dance is done;
And, one hand clenched on a frayed-out snake,
He lies lead-faced to the swollen sun.

CALIFORNIA'S OPPORTUNITY.

By M. H. De Young.

AFTER a fashion California has been widely advertised. It is known through the length and breadth of the land as a country possessing a wonderfully equable climate. Its remarkable agricultural productions have also attracted a great deal of attention, and created the impression that our soil is extraordinarily fertile; and we have enjoyed a degree of notoriety from Kearneyism and other causes that has helped to fix in the minds of many persons the idea that, after all is said and done, the Golden State is still a part of the wild and woolly West, with all the drawbacks peculiar to a raw, or, at least, an underdone civilization.

The World's Columbian Exposition may be taken advantage of by the people of California to remove this impression. By the aid of an appropriate and adequate display of our resources, and the extent to which we have developed them, we can teach outsiders that, although there is still room for expansion, we have made a beginning which will compare favorably with the maturer achievements of many of the older communities.

It would be a great mistake to underrate the influence of the impression that California is new and raw, which doubtless obtains in many sections of the East and the Old World, or to suppose that the erroneous impression is not widespread. It must always be borne in mind that it is the bad news which is telegraphed abroad, and that the exploits of a Black Bart are more dwelt upon by the Eastern press than the acts of broad-minded men who have established schools and universities, or the enterprises of citizens who have called into existence important industries.

I do not say this in a carping spirit. The methods of the Eastern newsgatherer differ not a whit from those of his Western brother. He lays before his public recitals of novel occurrences, among which stage robberies figure, and it is hardly to be expected that, every time he prints such an item, he should supply the explanation that California is a vast State, and that it does not follow, because a stage coach has been "stood up" upon some solitary road, perhaps a hundred miles distant from the nearest town, that lawlessness prevails generally. But occurrences of this kind, unduly emphasized, are responsible for the widespread opinion that our civilization is a trifle backward, and no one need be surprised if told that it is not rare for newspaper editors to receive inquiries whether we are supplied with good schools.

If, then, the idea that California is still in the wild and woolly state can be dissipated by an elaborate display of all of our material resources, we should eagerly seize the opportunity to make it. We cannot banish the impression by simply showing that we can grow large and fine fruits, raise big pumpkins and produce the cereals in abundance. Our display must be infinitely more various. It must be so thorough that the superficial, as well as the critical, visitor to the fair, will go away convinced that California is not only possessed of fertile soil and great material riches of all kinds, but that it has within its borders an energetic population which has made excellent use of them.

It is because I have felt that our chief aim should be "thoroughness" that I have so strenuously advocated a distributive exhibit. Having devoted much attention to the subject, I realized that any attempt to concentrate our exhibit under one roof might result in intensifying the idea that we were still raw—in the country fair stage, so to speak. I have, therefore, advocated that we put our best foot for-

ward in every department, and strive to carry off prizes wherever we can.

It would be a serious error to assume that our efforts would go unnoticed in the vast competition of the world. On the contrary, there is every reason for believing that we can make a creditable showing in almost every classification, and that in some we will stand pre-eminent.

In dwelling upon our wonderful development of the fruit industry, we are too apt to lose sight of the fact that we have made great progress in the mechanic arts. So little are we accustomed to referring to our exploits in this line, that the rest of the world has come to look upon us as merely an agricultural community, with all the limitations of a region devoted solely to farming. It is scarcely three months since the *Atlanta Constitution* seriously informed its readers that such was the case, and that we could never hope to attain greatness, because of our one-sidedness.

The Atlanta editor should not have made such a mistake, for the census report for 1880, had he consulted it, would have informed him that, while California stood twenty-fourth in point of population in the year mentioned, it held twelfth rank in manufacturing. The census figures for 1890 are not yet available, but if the rest of the State has made equal—I believe relatively it has been greater—progress with San Francisco, it will be found that our position has been improved.

At any rate, California will figure as an important manufacturing State in the census tables, but, as statistics of that kind do not impress themselves readily upon the average person, a far better idea of our progress in that direction can be conveyed by exhibiting, in their proper places, our great mining pumps, models of vessels, engines of all kinds, agricultural implements, our textile fabrics, our manufactured clothing, our boots and shoes, and the thousand and one objects turned out by our busy factories.

In the mining department we can convincingly demonstrate that the industry is by no means an extinct one, but that, on the contrary, it is growing steadily and surely. By this I do not mean to assert that the enormous product of placer mining days will ever be equaled, or even approached, but that by improved methods the yield of the precious metals extracted from our quartz veins will continue to increase, and that its annual value will equal an amount which some of the great agricultural States would not be ashamed to have stand for the product of some particular cereal.

Not only will we show that the business of mining is an industry intelligently and lucratively pursued, but we will also make plain the fact that we have a large variety of the inferior metals, all of which, when properly used, add to the comfort of man and the enrichment of the State.

In the same great department we shall exhibit our building stones, marbles, ornamental stones and quarry products generally. If pains are taken with this particular display, a stronger impression may be produced than with almost any other of our great resources. There is something fascinating about the country which produces in abundance marbles and other ornamental building stones. And when the story of production is accompanied by a recital of what has been done with the product; when we tell of the construction of ten-story buildings, whose principal feature is imposing columns and arches of marble, brown stone and granite, and whose halls are lined with beautiful slabs of variegated marbles rivalling the most famous colored products of the Old World, and rooms ornamented with onyx glowing with light and generous warmth, often surpassing in richness the rare productions of Mexican mines; when we tell this story, and point to the specimens to substantiate the truth, much will have been accomplished in the direction of dissipating the woolly West idea.

In the transportation department more well-directed efforts can be made to show how fully abreast we are of the rest of the world, and, in some in-

stances, ahead. When we display our cable cars, the fact will be made known that this excellent system of street locomotion was first put in practice in San Francisco, and that all the great improvements, which have contributed to the success of the cable system, are of California origin. We can show that the chief city of the State has the best system of street railroads in America, and, what perhaps will be equally astonishing, that many of our cities can give points to the much older communities of the East on the matter of locomotion.

In this department we can likewise show what we have accomplished in the ship building line. The fact that some of our best naval vessels have been turned out from San Francisco shipyards, if duly brought forward, as it is bound to be, will lift us in the estimation of that class—and it is a large one—which justly elevates to the first place among the efforts of man, a finished piece of marine architecture.

In the department devoted to showing live stock we can furnish another valuable lesson. No State in the Union can make better displays in this department than California, although our remoteness from the place of exhibition will put us at a disadvantage. The magnificent horses, bred on our stock farms, whose exploits are familiar to the whole country, will, at Chicago, come under the observation of immense numbers of people who will be forced to recognize that the ability to produce high-class turf horses, which conferred such a signal distinction on Kentucky, is equally shared by the Golden State, although the fact is often obscured by our many claims to other excellencies.

In the breeding of beef, dairy and other cattle, we have made equally great progress, and there is no question that we can hold our own with our most formidable competitors.

In the department devoted to education and the fine arts we can make our impress. Naturally a country so youthful as California cannot boast as great a number of artists as some of the older communities, but the divine spark of genius has fired some breasts, and their efforts will do us credit. Our painters of scenery have done work which will compare favoraby with that of their most gifted Eastern brethren, and California can claim at least two or three men whose work with the chisel is worthy the designation artistic.

But it would be impossible for me, in the compass of a brief article like this, to begin to enumerate all that we may do. When I study the official classification I am amazed to discover how few groups or even classes there are in which we cannot make a creditable showing. Indeed, I am convinced, if there is no relaxation of zeal on our part, that we shall be able to draw attention to ourselves in nearly every one of the one hundred and ninety-three great groups into which the thirteen departments are divided. If I am right in this assumption, then our advertisement would be continuous, and not confined to a single building, as it would be if we had made the mistake of attempting to collect under one roof—something absolutely impossible of accomplishment—all of the displays of our State.

To illustrate my idea I may call attention to the fact that one of the great groups in the department of agriculture is that of forest products and forestry, embracing nineteen different classifications. To adequately display all of the productions and appliances which will come under these groupings, annexes, in the shape of sawmills, etc., will be required. These will be sure to attract all of the large class specially interested in such matters and, in addition, that equally large class of curious sight-seers who love to watch machinery in motion. Obviously, if California failed to display her productive wealth of forest products in this place, she would lose a splendid opportunity to advertise this particular resource. But if she acts judiciously, and dares to show what she has to show in this particular line alongside of the products of States whose chief boast is

their great lumbering industries, she will be sure to achieve a signal triumph; for nothing so affects the human mind as variety. The people who only expected California to excel in fruits and viticulture will be amazed to learn that the State has great forests of excellent timber and a variety of woods, suitable for decorative purposes, which cannot be found in any other State of the Union.

The same impression may be created in other groups of the agricultural and other departments. Everywhere the visitor wanders he should see California represented in some shape, until at last he comes to realize that, within the boundaries of the State, whose area is 157,801 square miles, nearly everything that man desires or needs is, or can be, produced.

The carrying out of this idea does not necessarily embrace the abandonment of the proposal of a State building in which an effective display shall be made. On the contrary, it would wonderfully increase the interest in such a collective display, for every exhibit in the competitive departments of the Fair would be a finger-post directing the visitor to the State building to acquire fuller information regarding the capabilities of the State.

The contents and arrangement of the collective exhibit in the State building should be the subject of intelligent care and anxious solicitude. An earnest endeavor should be made to embrace in it every known product of the soil, mineral and vegetable, and no attempt to include manufactured products should be considered. When the infinite variety of our natural products is considered, it will at once be seen that the space required for their proper display will be enormous, and, as our chief aim is to show what California can do, it would be unwise to a degree to devote any valuable room to exhibiting articles not peculiar to the State and in the production of which we show no particular superiority over our neighbors.

I do not mean by this that the collective exhibit should entirely ignore our capabilities in the manufacturing line. That will not be necessary, as abundant literature can be furnished which will fully inform the curious of our progress in the mechanic arts. Besides our best efforts will be represented in the various classes of the groups in the great department and will speak for themselves.

The main object of the collective exhibit should be to display in a condensed form every natural product of the State and to afford as nearly as possible a graphic history of the development of the soil so far as it has proceeded. A leading feature of the exhibit should be a topographical map on an extended scale showing the mountains, valleys and rivers of the State. On this map could be laid down the mineral regions in such a fashion that the observer could at once distinguish the nature of the mines, if any have been opened, and the general geological characteristics. Our great forests of redwood, pine, and sequoia should be indicated and the vastness of individual trees, as well as the quantity of timber still standing. Our great agricultural districts should be shown with the boundaries of settlements already made and those portions of the State particularly adapted to citrus or other fruits designated. The range of temperature and rainfall of various sections could also be easily shown, making the map particularly valuable from the climatic standpoint.

As California has made such wonderful progress in irrigation and is rapidly convincing the rest of the world by its experience that it pays to be as independent of the caprices of the elements as possible, a comprehensive showing of what we have done in this direction would be both instructive and interesting. Models of irrigation ditches and lands made productive by the aid of water should be furnished on an extensive scale, and good photographs illustrating every phase of irrigation should be exhibited and an abundance of literature on the subject provided.

Our great variety of woods suitable for building and decorative purposes should be shown in the rough and in

the finished state. If possible, models of houses showing our woods and the uses to which they can be put should be supplied. There might also be specimens of interior decoration in native woods in the shape of panels, etc., and, whenever practicable about the building, California lumber and decorative woods should be used. Specimens of our big trees should not be absent from this part of the collection.

California building and decorative stones ought to have a prominent place in the collective exhibit, and the exercise of a moderate degree of ingenuity no doubt would permit their employment in different portions of the building. For instance, some of our beautiful onyx should be used in the construction of a conspicuous chimney piece, which might be designed by California artists. There could be columns of our pure white marbles and of our beautifully variegated specimens of the same stone. Models could also be usefully employed here to illustrate the use to which our stones are put and their number might be shown by some such device.

The fact that California is still a great mineral country could be shown by transporting bodily all that portion of the State Mineralogical Bureau's collection that pertains to California. It would make a complete showing, and more thoroughly demonstrate our mineral wealth than could be done in any other way. Models of mining shafts, mills, etc., and methods of working should form a leading feature of this part of the collection, but its principal object should be a vast pyramid representing the cubical measurement of the gold taken out of the soil of California since the occupation by Americans.

It is hardly necessary to urge that our agricultural exhibit should be complete in all particulars. We have been so accustomed to dwelling upon the prominence of this industry, to the exclusion of all others, that I have always deemed it necessary to suggest that our great agricultural possibilities should not blind us to the fact that we have a great variety of other resources. The probable trouble in this particular branch of the display will be to decide just how far to go. Some things, however, will have to be done. We must show what we can do in the raising of cereals by displaying specimens of our wheat, corn, barley, rye, etc., not only in the grain, but in the stalk. Every variety of vegetable grown here should be exhibited, and care should be taken to secure worthy specimens.

In the horticultural portion of the display should be included an elaborate array of our choicest fruits, done up in attractive glass jars, dried fruits, fruits of every variety in tasteful but showy parcels, our best raisins, crystalized and preserved fruits. Unquestionably this display, together with the displays of constantly renewed specimens of fresh fruits, will be the leading attraction of the exhibit. Therefore the most study should be bestowed upon it in order to achieve the best results.

In floriculture particular pains should be taken to keep up a steady supply of fresh flowers. We should also show every variety of preserved flowers and, in the way of decorations, as many specimens of semi-tropical plants as possible, in order to impress the visitor with the idea that our State has a distinctive and superior climate.

The viticultural display should be large enough to show the importance of the industry of wine making, and it could be made highly interesting with the aid of working models of vineyards and wineries.

But, above all things, a garden under glass should be provided, in which every tree and plant susceptible of profitable cultivation or for pleasure should have a place. Such a garden, with an occasional fountain fringed with orange, palm trees, evergreens, and all the infinite variety of plants familiar to us, would be a dream to most of the visitors of the fair, and make a lasting impression upon them.

I have here enumerated only such of the salient features as have occurred to my mind. To be thorough would re-

quire one to traverse the whole of the elaborate classification of the departments, for, if we do all we are able, we will make a display on a condensed scale nearly as comprehensive, so far as variety is concerned, as that of the great Fair itself.

If this collective exhibit is placed, as I am confident it will be, in an attractive building whose architectural peculiarities will draw attention, and is comprehensive and well arranged, it, in conjunction with the other exhibits, will finally and conclusively remove from the Eastern and the foreign mind the damaging impression that California is still a border region, and convince the world that in all things we are well abreast of civilization, and that our only peculiarity consists in the fact that we still have ample room for great numbers of people to form for themselves happy and prosperous homes.

THE SKYLARK'S SONG.

By Herbert Bashford.

THE feathered fir is bathed in dew,
And countless gems are clinging there;
A joyous lark amid the blue
Sends rippling music down the air;
And when on boughs that droop apart,
Each bead of crystal pulses bright,
His song has touched the dewdrop's heart
And made it quiver with delight.

THE REMOVAL COMPANY.

By W. C. Morrow.

IT is hardly strange that my best and oldest friend, widowed and dying, should have given into my charge her little daughter, Annette, for there was none other so strongly bound to this obligation, none toward whom that gratitude which lives beyond the grave extended a hand of gentler appealing. Nor did it seem at that time so serious an undertaking. Annette was sweet and gentle and quiet and obedient, studying my wishes and trying to follow their course, seemingly putting aside her own great sorrow in my presence and investing her demeanor with the full strength of her brave young heart. I knew little about children then, or I should not have been blind to the womanly conduct of this strange child. Now I have some idea of her suffering, which she kept so bravely from me, of that consuming yearning with all her childish heart for the touch of a mother's hand and the music of a mother's voice; and I know now how greatly she needed the kindly guidance of a level purpose and an even heart.

I thought I was doing the best I could. I imagined that the responsibility of the charge found proper estimation in my plans, in my conduct, and in my wishes. If there was a sense of oppression under it my gratitude would have masked it. So, being too young and unsettled to establish a household with Annette as my family, I put her in a convent. It never occurred to me to imagine that this sharp separation contained any element of a riddance, nor did there come up any formed hope that Annette, so desolate and lonely, so gentle, unselfish and retiring, might choose to become a conventual, upon which consummation my responsibility would cease, of course. When I spoke to her of going to school in a convent her sad face brightened, and then instantly it fell.

"What is it, Annette?" I asked.

"I can never see you then."

"Oh, yes," I said, "for I shall go to see you every week."

She looked up at me quickly. "You will come *every* week?" she asked.

"Yes; every week."

"Because," she added—but why did she use that word "because?" of what was it an explanation and for what a reason?—"because," she said in her sweet, low, childish voice, slightly tremulous, "you are all I have in the world."

I caught her up in my arms and kissed her for that, and this surprised her very much, for it was the first time I had ever caressed her, but that was because I knew so little about children. She went to the convent, and the years of her life began their steady course — with what loneliness, with what suffering, with what longings, with what numberless little cares and anxieties, with what small pleasures and diversions I did not know, for Annette was reticent, and it never occurred to me to inquire. My promise of visits suffered many violations, but my brave little girl never complained. There was always the same quick but transitory happiness which lighted up her pretty face when I would visit her; but there was otherwise a habitual sadness, growing deeper and surely merging into melancholy. And to my surprise she refused religious comforting—not that I was religious, but—I really did not know why her refusal troubled me. At times she talked sparingly but fearlessly a philosophy which made the good women there despair; these things they told me with concern.

The time came when I awaited with anxiety the day of her graduation, now close at hand, for responsibility

at last had laid a hand upon me; its effect upon an erratic bachelor, not old enough to be Annette's father, was disquieting. Was there any element of selfishness in this feeling? Had I been a churl in failing often to visit Annette?—for when I did go I always took her some little present, and she was grateful for it. Could I not have gone oftener and taken her more presents? Could I not have staid longer and been gentler and kinder to her, and told her things of the outside world to cheer her? Thus ran my thoughts, quickened possibly by conscience, as I sat in the very rear of the great room on graduation day, well concealed, I thought, by the large crowd present. Thus ran my mind as I sat and gazed in wonder at my Annette (for was she not my ward?) as she sat upon the platform with other girls. Could this beautiful girl be Annette? It must be, for she was so small, so fragile, so pale, so invested with an atmosphere of loneliness. In all that great room filled with people I saw only my little Annette; and never had I seen so pretty, so dainty, so exquisite a picture. I was glad she did not see me; I would let her know afterward that I had been there, and this would prove that I had not neglected her. She held the flowers which fortunately I had thought to send her, and her manner showed that by some accident I must have sent the kind she liked best; for in very truth I had ransacked San Francisco before I found any that I thought were good enough for Annette. But what meant this new look of trouble in her face? It appeared to be evidence of a tangible pain. A fear that the excitement had proved too great for her possessed me, and a strong pity was aroused. There was a strained expression in her eyes, whose glance wandered unceasingly over the vast audience, up and down, row by row, face by face, until the radiance from their unfathomable blue depths fell full upon me; and then instantly a bright flash of recognition, followed by a soft pink flush which rivaled the dainty coloring of her roses, swept over her face, and then a faint smile of pride and happiness, and her glance fell to the floor. At that moment there burst upon me unaccountably, with so fierce assailing that it stunned, the realization, all unexpected, all unguarded against, that my little Annette was a woman.

It was some days before I could recover full possession of myself, for by some unexplained means I had been thrown into a condition of wilder disorder than was customary even with me. Vaguely was Annette associated with this condition, and with a certain impatience I felt a resentment toward her—toward innocent, unhappy, unselfish Annette; and it added somewhat to my resentment to reflect that she was now eighteen, and beyond the legal reach of my protecting guardianship. It is true, she had no means for her maintenance, but I should not grudge her that from my modest earnings. This charge upon my income doubtless would keep me from marrying and having a home with all its sweet comforts, but was Annette to blame for that? and did this weaken the force of my obligation? And then, she might marry or become self-sustaining ——. But at that moment the following note was brought to me:

"My Dear Guardian: You have not been to see me since the day of my graduation, but I am glad to know that you have not been ill. Perhaps it is better that you did not come, for I know that I should not have had the courage to thank you for all that you have done for me. How can I thank you now? Every word, look, and act of kindness from you through all these past years will remain a precious recollection.

"Pardon me, my friend; but I can live no longer upon your bounty. I am a woman and of legal age, and my first right and duty are to maintain myself. Knowing your generosity and unselfishness, I must not let you know whither I go, but if all goes well with me you shall know.

"Farewell, by best, my dearest friend. Annette."

The blow was swift and cruel, but above all other feelings there struggled to the front one of bitter chagrin. So Annette had run away from me; so, after all, it was proved that I was nothing to her, and that now, when she was armed to make her own fight for life, she had no further use for me; so, she believed that my friendship was worthless, my guidance and assistance useless; and thus Annette had shaken me off as an ugly dream, leaving me bruised, humiliated, cut to the heart.

As the days passed by my resentment softened, and then there came upon me a fear that Annette's mind was deranged. Sometimes long ago I feared it, but not expected it. If I should find her with her mind awry, my duty would be clear; but if it should be otherwise how could I thrust my presence and friendship upon her? Her conduct had been a sufficient hint. The weeks passed, and my fear for her safety grew steadily. It looked bad that not a word had come from her. San Francisco was hardly large enough to afford absolute concealment, but it was large enough to starve in. How could Annette, with her dainty tastes, shrinking disposition and fragile body earn a livelihood there? Would she rather starve than be near me?

My fears finally impelled me to make a search, and for this purpose I employed a man named Greatwood. "I do not wish to see her," I instructed him, "nor does she wish to see me. If you find her tell her nothing, but report to me."

It was a harder task than I had imagined, but one day Greatwood came to me with a strange expression on his face. "I have found her," he said, "and she is in a very bad situation."

"Tell me about it, Greatwood," I begged, for his words gave me a quick, measurable pain and a great eagerness.

"Well," he said, "she has been sewing and trying to teach, but she was not strong enough, and her health broke down. It is a wonder she has lived so long. The people in the house have been kind to her, but she refuses to accept food from them, protesting that she is not in need of it. Matters reached a climax only last night. Some one heard a strange noise in the room —a very slight sound, but sufficient to attract the attention of a nervous woman in an adjoining room. She roused her husband, and they went to the girl's room. The door was locked; there was no answer to their calls and rapping. They burst open the door ——"

"Is she still alive, Greatwood?" I gasped, springing to my feet.

"Yes; but they found something worse than her attempt."

"What was it, man?"

"She was starving."

"Come, Greatwood," I cried, "take me to her."

"But you said——"

"Come—there is not a moment to lose."

We went as fast as horses driven furiously could take us. Oh, what a shabby, wretched place for Annette, and the poor, bare room in which she lived! I went straight to the bedside and gently raised the slight, emaciated form of my poor Annette—*my* Annette, I say—and pressed her to my heart. She knew me, and feebly put her arms around my neck—the first time she had done this in all her life.

"I didn't think you would care to see me," she faintly said, and tears of happiness streamed down her wan cheeks; and there came into her beautiful blue eyes just such a look as that which lighted them up on the day when she found me in the great crowd at the convent. The doctor who had been summoned that night to attend her had left an injunction that she be given a broth; but the women there told me that she had refused to take it. I ordered another at once. Annette watched me all the time, but said nothing, and her tears continued to flow. I was sure that I tried very hard to be kind and gentle with her. I said little, because she was very weak.

I gave issue to not a word of chiding —how could I? But for all that there must have been something in my manner that disturbed her. for she soon became restless. What was there lacking in my conduct? Was it sympathy? Surely I felt it with all my heart. It is true, I could not forget Annette's past treatment of me—not that it should affect either my sympathy or my sense of duty, but that it indicated her dislike of my care and attention. I felt that I was guilty of a rude intrusion upon her now; for I was interfering in a matter that lay wholly between her and her Maker; and I found in her desolate condition a sufficient explanation of the fleeting happiness which she felt upon seeing me. This had worn off quickly enough, but not sooner than I had expected. Even before the broth arrived my presence had apparently become a positive annoyance to her. I offered her the broth. She shook her head. I pleaded earnestly with her. Her look hardened all the more.

"But you must, Annette," I said.

Her eyes flashed with a quick look of defiance.

"No—come closer. Send the others away; I want to tell you something. . . . You are and always have been very kind to me . . . much kinder than I deserve or have ever deserved. . . . I can never repay you, because . . . I shall not live long enough."

"Annette!"

Her eyes brightened and a flush came into her deathly pale cheeks.

"It is true," she said, speaking more rapidly—"it is true. I am determined to go."

"What do you mean, Annette?"

"You know what I mean," she gasped, struggling to raise herself upon her elbow. "You know what I mean."

I knew then, for even if her words had failed to convey her dreadful meaning, the resolution in her beautiful eyes would have been sufficient information.

"You know what I mean," she repeated, "and it will be worse than cruel in you to interfere."

In spite of my philosophy; in spite of my belief in those unhappy days that the right to take one's own life was inherent, sacred, and inalienable; in spite of my conviction that none had the right to interfere and that all would better be dead than living; in spite of my opinion that among all those whom I knew—the sore afflicted, the deranged, the unhappy, the abandoned and desolate—none could find a happier release in death than my poor Annette,—in spite of all these things my heart seemed to die within me when a full realization of her terrible determination broke upon me. For my conscience was alarmed, and the memory of neglected visits and other attentions and kindnesses was aroused into unhappy activity. Possibly I could have made her life brighter and kept at bay the gloom and sense of loneliness that had become despair.

But what could be done? I knew that Annette was proud, and that the end of all things with her had come. Despite her generous effort to show appreciation of the little that I had done for her so meanly, I saw that my presence was irksome and my influence an evil. What could I do?

"Annette, do you not think it is wrong to do what you contemplate?"

"Ah, yes," she replied, sinking back upon her pillow and covering her face with her hands.

"Then," said I, "you know you should not do it. I don't wish to dictate to you or preach a sermon, but let me assure you, Annette, that violence to conscience is unnatural and unholy, and that it is unworthy of you. Think well, my child. . . And if I do not seem indelicate—how can I say without wounding you, Annette, that you need not fear the lack of such friendship in substantial form as I am able to give you?"

There was a long silence, and I knew that she was sobbing. Hope quickened within me, only to be strangled at once, for Annette brokenly said this:

"I appreciate your kindness and

thank you with all my heart, but—but—I am determined."

Should I resort to harsh measures to restrain her? That would be mean and cowardly. . . Annette must go. . . That deadening realization forced itself upon me. . . I would not interfere with the exercise of a right which I considered sacred. . . Only one thing was left for me to do—I must be a friend now.

"Annette," said I, "if you have the strength to listen to me I will tell you something very strange, and suitable only for the ears of those who contemplate the end with the willing mind of one anxious to accomplish it. It will not save you to me, but it will save your conscience to you, and your wish will be gratified without outrage to your sense of right."

Annette fixed a very earnest look upon me.

"I don't understand how that can be," she said.

"You are too weak. Take some of this broth, and then I will tell you a thing exceedingly strange and of the deepest interest to you."

With surprising confidence in me, she swallowed the broth, and its good effect soon became manifest; and when a little color had come to her cheeks and a healthier brightness to her eyes, I told her substantially the following:

"I have a friend named Reiferth, a German of about my own age, and he and I have the same ideas concerning the matter that is in your mind. Now, as a fear of punishment in a future life deters many from committing the act who would be better off if not so restrained, Reiferth conceived the idea of forming a company which would undertake, for an ample consideration, to remove from this life, without inflicting pain, those who earnestly wish to go but fear to take the step for one reason or another, and who will submit themselves to the company to do for them what they fear to do for themselves. I refused, much to Reiferth's surprise, to become a member of the company; whereupon he charged me with inconsistency, and maintained that the purpose of the company was wholly noble and humane. I believed that it was, but I did nor desire to embark in such an enterprise. Reiferth then declared that, knowing the scheme to be unlawful and its practice attended with the gravest dangers, with the penitentiary or the scaffold a constant menace to its success, I was afraid to become his associate. I made no rejoinder to that charge. Then Reiferth asked me to help him if it should come in my way, and I promised that I would. Reiferth put his plan in operation in the very heart of San Francisco, and there is evidence that he has prospered amazingly.

"Annette," I said in conclusion, "I offer you this opportunity for accomplishing your purpose without doing violence to your conscience. What do you think of it?"

[I have no desire to justify myself in this matter, nor to deny the right of criticism which the unusual position here advanced may invite; but while I know that the scheme here proposed may be denounced as but a form of suicide, and that its acceptance would bring all the penalties supposed to attach to that act, I have to say that I see little difference between its essence and that of knowingly acquiring habits and following practices which lead to the same result. It was important in this case that I impress upon Annette the idea of avoiding outrage to her conscience.]

Annette had listened with an interest that absorbed every faculty; and when I had finished she sat upright in great excitement, and somewhat to my dismay she said:

"Do you know where the place is?"

"Yes."

"What is it called?"

"The Removal Company."

"Will you take me to it?"

"Annette,——"

"Will you?"

"Immediately?"

"Yes; now."

"You are not strong enough, Annette."

"I am perfectly well," she responded, springing to her feet and commencing a few preparations.

With a heart so heavy that it almost dragged me to the floor I left the room and found my carriage still waiting. I went upstairs again, and Annette at once took my arm and walked firmly down to the street. So strange a numbness possessed me that I hardly believed I was in my right mind. In the carriage Annette, who was now all eagerness and activity, saw that something was wrong with me."

"Why," she cried, "you are ill!"

"I think not, Annette."

"I am taxing you too greatly—I am asking too much of you, . . but it will soon be over."

We arrived at the quarters of the Removal Company—a silent old brick house, with little exterior sign of occupancy. It was not far from the long warehouses that lie under the afternoon shadow of Telegraph Hill, and was in one of those districts which a vagrant fashion of migration had left a mere trace of former enterprise. Within the house all was brightness and modest luxury. Reiferth was a man of taste. He welcomed us very cheerfully. "I am sorry to see you ill, though," he said to me. He had a kind and gentle manner, and he handled with the utmost tact and delicacy the business in hand. I was hardly able to stand when Annette advanced to bid me farewell. Tears were in her eyes and she was pale, but her determination was firm and her courage unflinching. She took my hand and looked up into my face long and searchingly. What sought she there, if anything?

"Farewell, my friend," she said in a clear voice and with infinite tenderness.

"Annette,——"

But she stopped my words by throwing her arms around my neck, and before I could realize anything she had fled my presence, going with Reiferth to another part of the house. As soon as I could order my understanding I followed, but the door by which they had left was locked. No longer could I stand; an unaccountable weakness seized me, and I sank into a chair. There I sat an indefinite time in a stupor, and was thus sitting when Reiferth returned.

"Well?" I gasped.

"It is all over," he said kindly. Then he quickly brought me some brandy, which he made me drink.

"Where is she?" I asked.

"Upstairs."

"May I see her?"

"Why—no. I—I—don't think you ought."

"But I wish to."

After some further demur he yielded. He supported me up the stairs and into a room. On a lounge lay Annette. At the door my heart had bounded with gladness, for she appeared to be only sleeping; but when I had come nearer—I cannot write of all these terrible things even at this great distance of time. I had come to bid my poor Annette farewell now, for I could not, I could not in life.

"Please leave me, Reiferth," I begged.

When he was gone I took the slight body in my arms and pressed it close, very close to my heart. I covered the white, dead face with kisses. I kissed her hair and her sightless eyes, once so beautiful, and caressed the poor sunken cheeks.

"Ah, Annette," I cried, "my own little Annette, *my* Annette, I can tell you now what I have learned this day—that I love you; that I love you with all my heart and soul, and have loved you thus since the day when you sought and found me in the great crowd at the convent. How blind and foolish I was, Annette! And now you are gone, and my heart is broken."

Reiferth came and took the poor dead body out of my arms and kindly led me away. My poor Annette!

More than a year had passed, and I was standing listlessly on a street corner in Philadelphia. I could not live in San Francisco, for everything

there was eloquent with the memory of Annette. Darkness was approaching rapidly. I still stood, with that same dull pain which came upon me when Annette started down stairs with me to the carriage. The night was coming on cool wings, but its presence was soft and gentle. There was a shy touch on my elbow, and when I looked around I saw a beggar. She was small and slight, and was dressed in faded black. A black straw hat, with poor, cheap, faded lace, shaded her face from the street-lamp.

"Will you please give me a little money, sir?" she pleaded. "My husband has gone away, and I have nothing to eat, and my poor baby is starving."

It was not the voice alone that came to me out of infinite distance; there came crowding with it a thousand memories and all the anguish of a blasted life. I was a broken man, carrying existence heavily, but the eagerness which surged up within me swept aside all the torpor of my being. Some strange movement must have alarmed the woman, for she quickly raised her face . . and there was not a trace of recognition in her eyes.

"Annette!" I cried. "You know me—your guardian—your old friend, who reared you from infancy—Annette!"

"I—I don't know you," she replied, with pitiful fright. "I am not Annette—I never had a guardian"; and honesty shone luminous in every word.

"But you *are* Annette," I protested, aghast, "and you must come with me."

"No, no!" she cried, with worse fright still; and then she turned and ran away.

I would not let her go so easily. I sprang forward and caught her, and held her firmly.

"Do you hate me so much as this, Annette?" I asked with angry and unreasoning bitterness. "Tell me so, and I will let you go."

"I don't hate you—I don't know you—you are mistaken. Let me go. I am afraid of you. I will cry out, and you shall be arrested."

I released her, and she hurried away. Was there really some dreadful mistake? Was it possible not to be certain of that low, sweet voice, those beautiful eyes (now strangely dull), that look of indescribable sadness, that small frail form, those exquisite graces of pose and movement? But if it were she, how could she, so honest and innocent, so much a stranger to deceit, conceal her surprise upon encountering me, and how assume entire ignorance of me? Here was a strange mystery—or—had I gone mad and taken to finding Annette in shadows? I glanced after her, and in the distance saw her hurrying along, fear lending fleetness to her step. Had I forgotten that Annette was dead?—but would not even her spirit know me? Without a thought of what I did I hurried after the flying form, which distance and darkness were absorbing—I would not lose Annette again. I went forthwith in pursuit, holding my pace within the necessities of its mission, getting a firmer hand upon my eagerness, and looking to the ordering of my purpose; for if ever a man needed to be bold yet cautious, firm yet gentle, fearless in strange, dark perils and reliant upon the evidence of his senses, that man was I. Enough had come forth already to distract my faculties; but Annette, dead or alive, had stood before me, and I would follow her now whithersoever the love which bound me to her might lead.

Without once having looked back, Annette arrived in a dark street, slipped quickly into a door, and in a moment a tall, ugly house had swallowed her up. I was now close behind her. I tried the door. She had bolted it. I rushed upon it madly, burst it open, and sent it flying against the wall with a crash that resounded throughout the depths of the house; and as I did so I saw Annette—for I must call her so—clearing the top step. She turned and saw me, and fled with a cry. Never bounded a deer with swifter leaps than mine. I was close

upon her in a dimly lighted hall, when she flung open a door, cried "Mother!" in a choking fright, and as I pushed into the room threw herself into the arms of a strange, sinister woman, wrinkled and bent with age. There the poor girl, her face buried in the woman's shoulder, sobbed and gasped and trembled in a very agony of fear. In a moment a powerful man of middle age came hastily into the room behind me, and stepped to one side to see me better. Other men followed him—men with dull, vacant faces, whose blankness would have impressed me at another time; but through all these faces and circumstances, through the turbulence of my emotions and the fierce energy of my purpose, there arose and stood forth the fact that this strong man and I were enemies—that between us two lay the settlement of this affair, and a dark pit yawned for him who should fall. He was the old woman's son; thus spoke his sharp eyes, somewhat dulled with drink, and his high cheek bones, like hers; the pose of his head and certain tokens of manner—all a copy of his mother's; but where coarse and brutal in him, sharp and cruel in her. Upon his body he wore only a woolen shirt, open at the breast, the sleeves rolled up, and upon his lower limbs coarse trousers.

"Well," said the man, his voice deep and his manner menacing, though betraying a puzzled mind, "who are you an' what yer tryin' to skeer them women to death fer?"

Annette, controlling a sob, raised her face upon hearing his voice, and looked at him gratefully.

"Joe," she said faintly, "I'm so glad you are here. You won't let him hurt me, will you, Joe?"

"Not as long as them hands kin close up a windpipe," responded the man, making a significant prehensile movement with his fingers; "but I don't think nobody wants to hurt yer, Bess. Now go to the baby."

Annette started and her lips opened. With a little cry she ran to a cradle in the corner—a very poor and shabby cradle—and tenderly lifted a sleeping infant. "Poor little angel," she crooned. "Did you think your mother had forgotten you?"

Its mother?

"Whose child is that?" I asked the man, and he noted the threat and challenge in my voice.

"I don't know what right you have—"

"I have a right, and we will not discuss it," I peremptorily interrupted.

"— to come here an' raise this rumpus an' skeer a couple o' women, but if you'll be decent an' kind, like, about it, you kin ax my sister herself."

"Who is your sister?"

"Bess, there." He motioned toward Annette—Annette, gentle, dainty, refined, full of the softest graces—Annette the sister of this ruffian! "Come, Bess," said he, "brace up an' answer this man's questions. I won't let him hurt yer. You're jest as safe as you ever wuz in yer life. Tell him what he wants ter know, and tell it straight up 'n' down."

Thus encouraged—and, I could see, half commanded also—Annette (for I must call her that yet) turned and looked at me for the first time since I had entered the room. All hope that she might recognize me in the stronger light was dissipated instantly; she regarded me only with fear and uneasiness. I approached her closer.

"Annette," I said, removing my hat and looking down into her face as she sat holding the child——

"My name is not Annette," she hastily interjected.

"What is your name, then?"

"Elizabeth. My mother and my brother Joe call me Bess." This, looking up at me in the fullness of honesty, but perplexed and fearful.

"What is your other name?"

"Hartly. That is my husband's name."

I staggered under that blow, and the sharp eyes of the old woman and her son were fastened upon me with a steady gleam that burned.

"Whose child is that?" The words

came with effort from a great depth within me.

"It is mine. Her name is Pearl. I am her mother."

Thereupon I went all astray from myself, and looked around with helpless dismay. The four sharp eyes were consuming me. Annette—may I so call her yet?—gazed steadily up at me with all her old gentleness and sweetness, but still with fear and anxiety. Beyond the four burning eyes were the faces of men who stared in blank stupidity. I looked down at Annette, and there too I saw now, not clearly, if at all, something of the stamp of vacuity which was upon the faces of these ragged men grouped near the door. I was groping in a gloomy path beset with deep pits, and I breathed uncertain dangers. The four eyes burned me with a glowing heat. In a tangle of betrayed senses I essayed a persistence which I hoped would drag Annette forth from what I conceived to be some grim and overmastering constraint.

"Where is your husband?" I asked.

Annette was puzzled or cautious, for her glance flew for help to the man Joe.

"Where is your husband?" I pressed it upon her, feeling that I possibly had touched a spring. The man's sharp gaze was transferred from me to her.

"Answer him fair, Bess," he said, not unkindly; "give him the straight truth."

"He has gone to sea," answered Annette, looking up at me in a wondering and troubled manner.

"When did he go?"

She appeared to be thinking very hard and sounding her memory for an honest answer.

"It was while I was ill," she finally said with some suddenness, and with much pride in her victory of recollection.

"You have been very ill?"

"Oh, yes; very ill indeed."

"When was it?"

"It was when my baby was born." (Here she began to speak with a quick, nervous energy.) "I didn't know it until a long time afterward—I was so very ill—and my husband was not with me. When I recovered I had forgotten I was married. I was in a strange——"

"Stop there, Bess," fiercely cried the man. She obeyed instantly and trembled. "You've got one o' them spells o' your'n agin, an' yer tellin' what yer don't know, an' yer lett'n' yer tongue run away with yer senses. Forgot yer husband! Forgot yer was married! Maybe you've forgot I'm yer brother."

"No," faintly protested the girl, regarding him with wide eyes; "no, Joe; I haven't forgotten that, but I forget so many——"

"Who's this woman here?" demanded the man, indicating his mother.

"My mother. But, Joe——"

"Shut up! You've got one o' them crazy spells agin. Now, mister," added he, turning angrily upon me, "it's about time yer cleared out o' here, ain't it?" With increasing anger he continued: "You chased this here girl to her house, an' smashed in the door like a wild beast, and tore in here like as if you was goin' to murder the poor thing, an' now you've set her wits loose an' brung on another o' them wanderin' an' fergettin' spells. That's why I say you'd jist better clear out."

The man was in a rage; and, seeing that I did not move, he stepped to the chimney and took an axe-handle from the corner. At this juncture the old woman came out of her silence.

"No, Joe," she said with a strong, quiet firmness; "don't lose yer head, my son, for yer need a cool brain an' a stiddy nerve right here and right now. There's jist a misunderstandin' summers, an' it'll come out all right." Joe became quiet, and his mother turned to me and said: "You look lack a gentlemun, sir, an' no doubt you air; an' yer don't look lack you'd been a-drinkin'; but you'll allow you've acted very queer—I might say outrageous-like—an' my son ain't to be blamed fer gittin' mad at yer. Now, to save

my blessed life I don't know what yer drivin' at, but I b'lieve yer actin' on good principles and have mistook this girl fer summon else, 'cause you've been callin' her Ninette, or somethin'. You suspec' there's somethin' wrong, an' yer think yer know the girl, an' want ter get her out o' this scrape." And so the woman talked on, reviewing the whole situation with uncommon skill, reminding me that the girl did not know me, that in all her answers she had tried to tell the truth so far as a shattered mind would permit. The woman closed a long speech by going into a tedious history of the girl's life and assuring me that unrestricted opportunity would be given for an official investigation on the morrow. But the whole of this fine effort passed without effect upon me.

"No! I exclaimed. "I will not trust her another night in your devilish hands. There is some crime here of so damnable a character that it overwhelms your lies. I will spare you the law on condition that you stand aside and let me take away this girl in peace."

Upon saying that I picked up Annette and her child and advanced toward the crowd that held the passage to the door, but the fury of the man Joe escaped restraint, and he sprang before me with his weapon aloft.

"No!" he cried with an oath; "not while I'm alive."

In an instant I had put Annette aside and sent a chair flying through the glass window. I leaped to the opening it made and cried out with all my strength. The call for help went bounding up and down the street from other throats, and swift feet were set in motion. I glanced back upon my enemies. The furious ruffian, taken unaware, had stood a moment in a stupor; but now, having roused himself, he came upon me with the one purpose of killing me. At that moment the shrill whistle of a policeman, always a thing which strikes upon one's sensibilities much as a physical blow, went at large upon the night and thrilled all the ruffian's nerves and drew the sap from his purpose; pallor swept over his face, his hand dropped.

"Joe," called his mother, in sharp anxiety, "git them fellers away quick an' come back here. *We'll see yit.*"

The man, quickened by a sense of danger, hustled away the dumb blank creatures and returned simultaneously with two officers, who headed a procession of frightened and curious people.

"Shut the door," I called out. The officers came within and the door was closed upon the crowd.

"Who was it called for help? What is the matter?" asked one of the officers.

"It was I who called," I answered.

"Oho, Simpson!" said the same officer, addressing Joe. "Trying to do this man, eh? You've been quiet so long that I thought you had given up that sort of thing and was sticking to the begging business. . . Well, what has he been trying on you, sir?" concluded the officer, addressing me.

"Nothing, I assure you," I replied, "but this girl, whom I have known from her infancy—I found her here and would have taken her away, but this man tried to kill me. I want you to help me rescue her from this fearful den."

"That girl with the child? Oh, she's one of Simpson's best beggars!"

Upon his requesting it, I gave a relation of all that had happened since I first saw Annette on the street. "She is one of his beggars, you say," I added; "there is yet a deeper and more damnable infamy. They say she is married. It is a lie; but see, she is a mother!"

"Ah!" exclaimed the officer, fixing a hard look upon Simpson, who, encaged within grave suspicions, appealed with his eyes to his mother. She thereupon said:

"I'd lack ter speak a word private to this gentlemun."

"I went with her into a corner of the room, and we whispered.

"What yer want ter do, sir?" she asked.

"I intend to take this girl to the police station."

"Ah, well! She's dementy, like; an', 'twixt you an' me, I ain't sorry ter git rid of her."

"You and your son also will go to the station, but as prisoners, to be tried and punished for your crimes."

This to her was not unexpected; but she fastened her gaze upon me with a penetrating, sinister, unwavering manner, and it hurt.

"I don't think you'd better do that," she said, not relaxing her gaze, and speaking very slowly. "Once there was a man what connivered in schemes fer to *remove* people what didn't have the sand fer to kill theirselves, an' when some folkses found it out they blowed on him, an' he spent the rest of his life in the state's prison. . . . Me 'n' my son don't want no trouble with *you*, an' you don't look lack a gentlemun what's got a wobbly tongue."

I left her and returned to the officers. Annette sat holding her child tenderly, but with a look so pathetic and helpless, so confused with fright and a shaken consciousness, that while I yearned to comfort her I could see that whatever little mind she had was drifting away. I said to the officers:

"I wish to take this girl and her child to Dr. Arnold's hospital. Will you kindly help me?"

"And Simpson goes to the station?" I heard the sharp clinking of handcuffs.

"No—not to-night; there is time for that. Help me in the present urgency."

Annette's resistance was slight, and there was no other. She sobbed all the way in the carriage, and talked incoherently to her fretting child. She was made comfortable at the hospital, but she sobbed continuously. "Her dementia," said Dr. Arnold, "is almost complete. The shock has been too great." I took him wholly into my confidence, omitting not even the Removal Company and Annette's experience there. He asked me many questions; his mind was quicker and deeper and shrewder than mine. "Without knowing it," he said, after a long silence spent in pacing the floor, "you have unearthed a singular and original form of crime. The Removal Company has never killed any one."

I looked at him amazed and incredulous.

"Not one," he continued. "The victims were simply treated with a drug which destroyed their minds partly and their memory wholly. Are you so confiding as to believe that Reiferth would have dared take any one's life? The risk was too great, and the plan lacked that merit of continued profit which distinguishes the one in actual operation."

I did not understand him.

"With wrecked minds the victims would make good beggars," explained the doctor. "The wretches are sent from San Francisco to Philadelphia, where the danger of recognition is small, and are kept as beggars under the reliable agency of Mr. Joe Simpson and his mother; and your Removal Company has a steady income through their zeal. The blank-faced men whom you saw at Simpson's, as well as this poor girl, have been subjected to the peculiar treatment of the Removal Company, and are employed as beggars."

I think I hardly understood all of this at the time, for I was weak from a great strain, and nervously awry from a certain strange, wild joy for having Annette alive and under my care once more.

"Can you restore her to her former condition of mind?" I asked.

Gravely and slowly he made answer: "There is a bare possibility. . . . The plan must be heroic and desperate. . . . If it fails—death or complete dementia."

It came out afterward, in an investigation of Simpson's methods, that my poor Annette, whose innocence and sweetness must have been her guard against even the lowest brutality, had never been a mother; that was a deception practiced upon her to make her captivity surer.

"Ah," exclaimed Annette, upon emerging, after many days, from those

great depths, "I am still alive! Why did not Mr. Reiferth keep his promise? Have I been asleep long?"

Ay, more than a year, Annette; but the hideous dreams of that black and terrible time have left no stamp upon your memory!

The sweet, cool western wind and the generous sunshine come to California, bringing their blessings to the rich and the poor, the prosperous and the unfortunate, the happy and the despairing; but I think that the gentle winds and the shining years bless with a special grace one happy home, which, born of suffering, of strange misunderstandings, of crime, of darkness, has issued forth into the broad yellow light that heaven sends, grateful, humble, inexpressibly content. That home is our's—Annette's and mine; for not alone have the church and the law made us man and wife.

THE MT. WILSON RAILROAD.

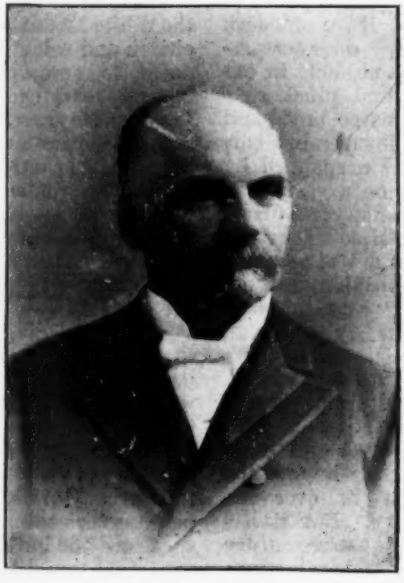
By Hon. B. S. Eaton.

MOUNTAIN railroads are one of the many notable achievements of the last quarter of a century, — the first one having been completed in July, 1869. Modern science does not presuppose any physical obstacle in engineering that skill and pluck cannot overcome. Streams so broad and deep that they seem insuperable barriers to land travel, are spanned by bridges, resting safely on a succession of massive piers of masonry; and river banks which have been so dissevered by physical forces as not to admit of this method of connection, are reunited by supporting ropes of steel, so that man may safely cross in the rushing car hundreds of feet above foaming torrent or fearful chasm. Mountains are pierced from side to side so that, through miles of solid rock, the stream of travel and trade may flow on as securely through the bowels of the earth as over the smoothest of its plains. But it has remained for the last quarter-century to devise methods by which the summits of high mountains may be reached with ease, speed and safety.

The first mountain railroad ever built was that by Sylvester Marsh on Mt. Washington, New Hampshire, which was begun in 1866 and completed in 1869, two months after the opening of the Union Pacific road. Until 1876 the little village of Marshfield, on the mountain side, less than three miles below the summit, remained its starting point. From this place upward the railway has an average grade of 1,300 feet to the mile, while the maximum grade is 1,980 feet or 13¼ inches to the yard. As Marshfield lies at an elevation of 2,563 feet, while the mountain is 6,273 feet high, there is left 3,710 feet of altitude to be overcome in less than three miles! Yet, so far as we can learn, no serious accident has ever occurred on this railroad, although it is estimated that 30,000 persons are carried over it annually.

What Sylvester Marsh has done for the White Mountains, a public-spirited citizen and scientist of California proposes to accomplish for that State. Several years ago Professor T. S. C. Lowe, while traveling through Southern California became interested in the natural beauties of the section and decided to make it his permanent home. To his friends he said he was going to rest, but the innate energy of the man has made him one of the most active figures among the upbuilders of this portion of the State. He settled in Pasadena, building there a home which is one of the finest and largest private residences in the State, enriched with the accumulations of travel over the world. From the lofty tower of his house Professor Lowe has one of the finest views of the Sierra Madres in the San Gabriel Valley, and it was perhaps the contemplation of this that suggested the building of a mountain road that would take the tourist from the valley to the summit of Wilson's Peak in a short space of time, while affording an opportunity to enjoy the magnificent scenery. Professor Lowe has always been identified with some project of more than ordinary magnitude. He is the father of scientific aeronautics in this country, and originated the plan of using balloons in war. From early life he has been a close student, devoting his attention especially to chemistry and kindred pursuits; making a specialty of the experiments in which the various gases and their relations, one to the other, played a prominent part. In 1857 he noticed that

little attention had been given to the scientific study of aeronautics in this country, and with his accustomed energy he took it up and began an elaborate series of experiments. His first voyage celebrated the laying of the Atlantic cable, and was made from Ottawa, and in 1859 he constructed the largest aerostat ever built with a view of crossing the ocean, for the purposes of gaining knowledge of such meteorological phenomena as might not exist over the land. In 1860, at the invitation of the Franklin Institute of Philadelphia, he made a second attempt, which resulted in a memorial, signed by many distinguished citizens of Philadelphia, addressed to Professor Henry of the Smithsonian. A result of this was that Professor Lowe became the inventor of a meteorological system of which the present weather bureau is an outcome. He outlined a plan by which observations could be taken from high altitudes in various parts of the country and telegraphed to a bureau in Washington. His views were given freely to General Meyers, and as a result we have the present system. At the suggestion of Professor Henry, Professor Lowe made an experimental trip over the country before starting across the ocean. He left Cincinnati, Ohio, at 4 in the morning, April 20, 1861, and landed on the coast of South Carolina at 12 the same day, making the longest and quickest voyage on record. This was two weeks after the firing on Sumpter, and the scientist was arrested and thrown into prison by the Confederate authorities, but succeeded five days later in reaching Cincinnati again. The President, through Secretary Chase, then requested his presence at Washington, where he organized the war balloon observation corps, and for three years was chief aeronaut, rendering valuable service to the Government. During this time he made three thousand ascensions, and was the first to establish telegraphic communication from a balloon. His system and the many inventions connected with it attracted world-wide attention, and was adopted by the British, French and Brazilian armies, the Emperor of Brazil tendering him the rank of brigadier general, with large extra pay, if he would undertake the charge of the corps in the imperial army. Professor Lowe's contributions to science have been many and valuable. Among them may be mentioned the ice-making invention now in general use over the world, and the famous water-gas process for illuminating and heating, which is used in over five hundred cities in this country and Europe.



Professor T. S. C. Lowe.

His inventions have all been useful, and those intended for profit have in every instance proved financial successes.

Of his business experience and ability we have only to refer to some of the institutions of which he is the present head. He is President of the Citizens' Bank of Los Angeles, Cal.; the Los Angeles Safe Deposit and Trust Co.; the Pasadena Gas and Electric Co.; the Colorado Springs Gas and Elec-

Snow on the Summit of Mt. Wilson near the Upper Depot.

tric Co. He is Director, Consulting Engineer and a large owner in the Los Angeles Lighting Co.; Director in the Citizens Ice Co. of Los Angeles and in the Pasadena Fruit Packing Co. Professor Lowe is also owner of the Pasadena Grand Opera House Block, including the finest Opera House on the Pacific Coast; President of the Pacific-Lowe Gas and Electric Co.; owner of the New Lowe Gas and Electric system for the United States, Canadas and Mexico; and, lastly, President of the Pasadena and Mt. Wilson Railway Company.

Such is a brief glance of the man who has undertaken to build the finest mountain railroad in the world, and give to California an institution that will attract thousands to its shores. Professor Lowe's associates in this great work are all men of mark and notable business intuition. The vice president of the road is the Hon. P. M. Green, president of the First National Bank of Pasadena, who has been a prominent figure in the development of this section of Southern California. The treasurer is T. W. Brotherton, Vice-President of the Citizens' Bank of Los Angeles, while as an advisory board are the following well-known men, whose names are all associated with great successes in mercantile or commercial life. Gov. H. H. Markham, H. W. Magee, president of the San Gabriel Valley Bank; J. W. Hugus, president of the First National Bank of Rawlins, Wyoming; Dr. R. H. McDonald, president of the Pacific Bank of San Francisco; Andrew McNally, of Rand, McNally, the Chicago publishers; Hon. P. M. Green, president of the First National Bank of Pasadena; J. W. Scoville, president of the Prairie State National Bank of Chicago; Hon. T. P. Lukens, Pasadena National Bank, and A. C. Armstrong, of Pasadena.

Before glancing at the proposed work in the Southern Sierras it may be interesting to note some of the mountain railroads of the world that are already financial successes.

In the Alps we may mention the one that winds up to the top of Mt. Rigi, and another which accomplishes the still steeper ascent of Mt. Pilatus. Then there are two others near the Rhine, one climbing Mt. Drachenfals and the other the Neiderwald, while in Italy we are carried in a railway car to the crater of Mt. Vesuvius. Returning to our own country, in addition to the pioneer road up Mt. Washington, there have been built two among the Alleghanies, near Reading, Penn., one that scales Lookout Mountain, and, last and highest of all, the railway lately finished to the summit of Pike's Peak.

Mt. Wilson is one the prominent peaks of that section of the Coast range known as the Sierra Madre, and which forms the northern boundary of Los Angeles valley. Along this mountain chain there are several peaks as high as Mt. Wilson, and one or two that are higher, all connected by steep and narrow rocky ridges, most of which are very difficult to traverse. To the west stands Table Mountain, of equal height, and beside it "the Commodore," or San Gabriel, about six hundred feet higher, while farther on lies Mt. Disappointment, all plainly visible from the valley, but almost inaccessible on account of their ruggedness and entire lack of water. The special charm to the explorer of the wilds of Mt. Wilson is that near its summit there is plenty of the pure, cool liquid, while not for miles on either hand can any water be found on the higher portions of the range. Yet it is but recently that public attention has been specially directed to this wonderfully attractive locality. To learn how this grand recess of nature could so long remain hidden, we must refer briefly to some historical incidents connecting it with the recent incoming of American citizens to this part of the State.

About twenty-five years ago B. D. Wilson, a pioneer in Southern California, conceived the idea of procuring fence material from the mountain for use on his large estate. The scheme of a wagon road up its steep, rough sides was found to be futile, and even the opening of a trail that could be used

by the sure-footed little *burro*, when loaded, was no small undertaking. After a while Mr. Wilson found that the timber was not durable enough to pay the cost of getting it down, so the trail was abandoned. In the lapse of years it was washed out by rains, grew up to brush, and became almost obliterated. But the settlement of Los Angeles valley went on, the land along the base of the mountains was becoming peopled, and soon the daring hunter and eager sight-seer were inquiring for the "old Wilson trail." Gradually the thorny brush was cut away, and the damages wrought by winter rains repaired, so that men with their pack-burros could reach the heights, camp in the evergreens, catch the trout, and enjoy "high life" in a primitive manner. Still the journey thither was too toilsome for many to make, as bedding and provisions must be packed up the narrow path, while deep chasms yawned below, as if waiting for man or beast, that should slip or stumble. Hence, while those who did go said "it paid" to have been there once, once was voted enough.

A new and different kind of interest in Wilson Peak is now to be chronicled, and one that will prove—has already proved—the germ of an enterprise of world-wide fame. In the fall of 1888, Harvard University, having on the Pacific Coast a large photographing telescope — 14-inch glass—consented, on certain conditions, to place this instrument on Mt. Wilson for a period of four months, and thus determine what special advantages the location might have as a site for an observatory. This, should it be erected, would be furnished with the largest photographing telescope in the world—one with a 24-inch lens, now in process of manufacture. The results of the four months' sojourn of the astronomical outfit were so remarkable that the time was prolonged to a year, and so well satisfied were the Faculty of Harvard that right here was the gem of all known localities for this branch of their scientific investigations, that prompt action was begun with a view to acquiring a clear title to as much land on the summit as would subserve all their purposes. But the telescope that had, for a year, done so much for astronomy on Mt. Wilson, had had a "great time" in making the trip. It had literally gone *per aspera ad astra*. Its entire fixtures, with the packing cases, weighed no less than 3,800 pounds, so that much had to be done to the trail before the safe conveyance of the precious tube could be effected; but the doing of it, with its attendant difficulty and expense, roused the people of Pasadena as nothing else could have done to the imperative need of a good road up Mt. Wilson. With two still larger telescopes to go up there, with all that the erection of an observatory and related buildings may imply, and the wants of an ever-increasing flood of visitors to provide for—it is certain that *we must have a railroad.*

Of course, after enough had been done to the old trail to make the conveyance of the present telescope possible, it was passable for travelers on foot and on horseback, and soon the silent heights were invaded by thousands of people, and the long-neglected peak became famous. Though the trip still has much of toil and a spice of danger, hundreds take it, and camps and restaurants near the summit are hard pressed to find bed and board for the eager throng. What wonder then that the call for a railroad should echo from cliff to cliff of our mountain, and that the valley should murmur the refrain?

A preliminary movement has been made in this direction, and the result is a new and better trail for saddle animals, and one that is generally more safe. Following the spur which forms the eastern boundary wall of Eaton canyon, we find an almost continuous line of ascent from the base to the crest, and this was chosen for the new trail because, by its windings and doublings, it could reach the top without trestle work, and with only one bridge. It has an easy grade, plenty of dirt for the roadbed, and is free from special danger from storm-water in time of

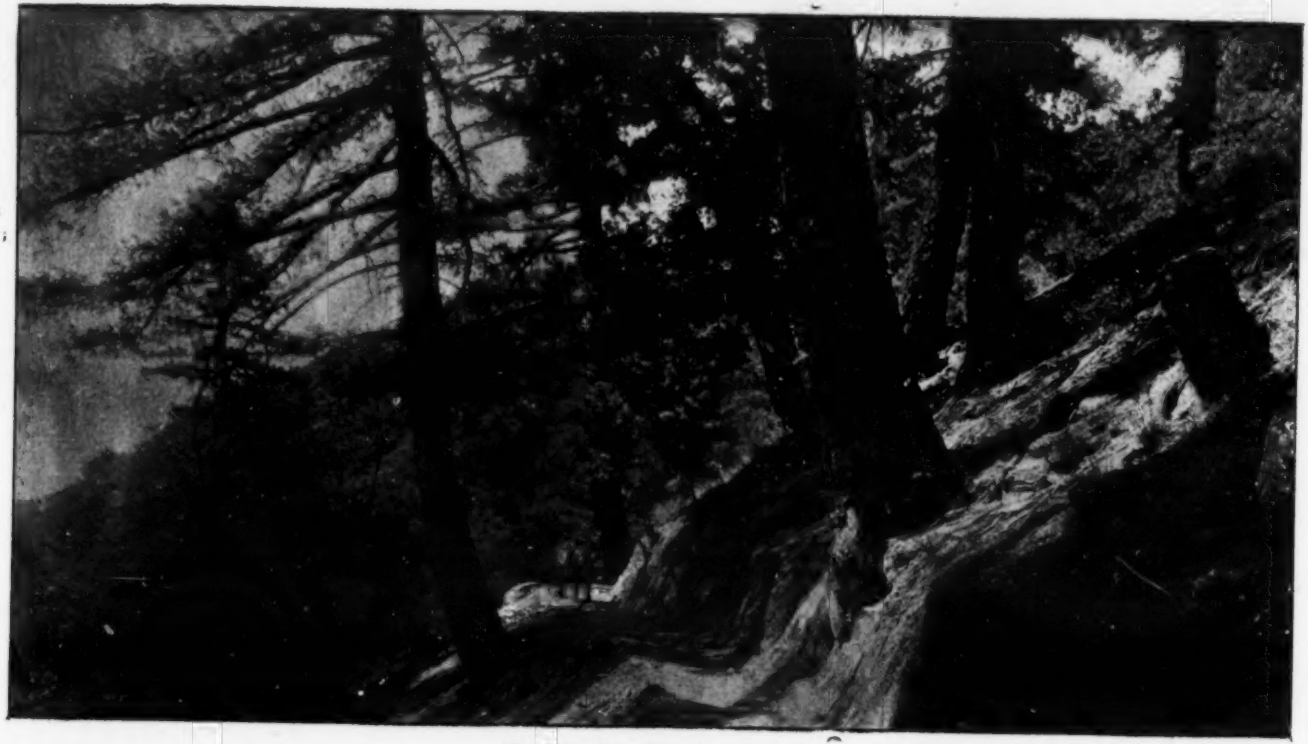
rain. But not long will the people tolerate burro and mule riding and packing in an age like the present. The railway "with all the modern appliances" will soon carry us skyward, even from a bath in the ocean surf at ten o'clock to a seat on Mt. Wilson's crest ere the sun shall have made half his course from noon to the hour of setting. Can such a location longer fail of appreciation? No—the railroad is coming!

View of Ferns near Lower Depot, January First.

Let us anticipate the good time approaching by taking an imaginary trip on the rail. A half hour brings us from Los Angeles to the center of Pasadena, 843 feet above sea level, and only three miles on an air line from the initial point of the mountain road proper. But this three miles has an average slope of 230 feet to the mile. The Altadena road has already, in seven miles of detour, overcome over half of this ascent, and two-thirds of the direct distance. An ordinary traction railway can easily be made to surmount the rest, while giving us by its curves a chance to view the whole of Pasadena in differing aspects. To the north the rugged mountain wall shuts off distant views, but is impressive in its rough grandeur. It is mostly covered by a thick growth of brush, which relieves its otherwise barren appearance. But look southward as we journey toward the base. Yonder lies the "city of homes," spread out in one broad panorama of beauty. There are its parks, and orchards; there its gardens and grounds displaying the fruits and flowers of every clime; there stand its mansions, with lawn and terrace adorned with walks and statuary, and all that wealth and taste can contribute. Another curve of the railway, and we see streets embowered with the pepper and the palm, and lined with cottages covered with climbing roses—a veritable fairy-land. As we recede from these we can still mark the loca-

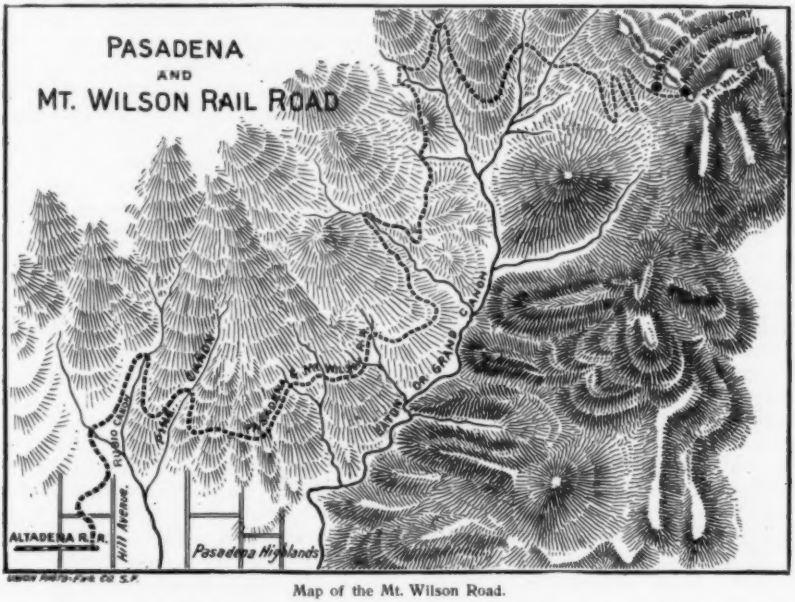
tion of the large school buildings, and count the spires of its many temples of worship. We begin the ascent, catching here and there a glimpse among the foothills of little canyons with spots of fertile soil watered by trickling brooks that have tempted hither the quiet settler. Here, away from the noise of town, many a picturesque home has been made, supplied with fruit trees and adorned with flowers, where the owner may rest content, enjoying much of pleasure that is unshared by denizens of thickly settled communities. But sweep on and up, further into the rocky solitude, and the view below is shut out, while new and varying objects engross the attention. We are threading our way along the western bank of Eaton canyon. Adown the rocky bed, far below us, in winter there dashes a raging torrent of water which dwindles in summer to a small, silver brook. So steep is the bed of this canyon that while we enter it several hundred feet above its bed, we find that long ere we reach its summit we shall be gliding on our upward way along its rocky bottom. In whatever direction we gaze it is now mountains, all mountains—wild, irregular, indescribable. In one place a mural precipice rises from the canyon bed 500 to 600 feet perpendicular, then slopes gradually back an indefinite distance. This and other like cliffs could not be ascended from the base, and the slopes above are covered with a thorny growth so dense that no one can penetrate it until a path has been chopped out foot by foot. Occasionally, as we wind around some projecting rock, we catch a glimpse of the temporary observatory 3000 feet above us. When we entered the canyon we were only three and a half miles—air line—from that point, and yet, after passing over nearly twice that number of miles of track, we are only half way up. Such is the clearness of the atmosphere that it seems as if a bird could reach it by a mile of flight; yet there are cliffs so frightful and gorges so deep between us and our goal that even wild animals avoid them, as if in fear of being entrapped therein. But, thanks to engineering skill, we wind safely in and out among their recesses, and soon reach the point where the narrow and crooked chasm broadens, and we find ourselves on the "pine level." Instead of a walled-in and narrow valley, we are in a broad basin that appears entirely surrounded by mountains. Countless smaller canyons branch off in every direction, as if seeking a place of exit. Dark fir trees, with lofty pines and cedars, adorn their sides and hide in their recesses, beckoning us to explore their cool depths, where, perchance, over some cliff there tumbles a crystal cascade, the water below rippling and rollicking on until it falls into a mirror-like pool, the home of the mountain trout.

Another one thousand feet up and we are still in the pines; in fact the forest region reaches to the mountain top. We are now as high as the city of Denver, and as the Lick Observatory on Mt. Hamilton. Now we encounter a chaos of enormous granite boulders—the original field whence came the hard, heavy spheres that abound in the beds of all our mountain streams, miles away from any formation that could have produced them. Up here these granite rocks are as irregular and angular as if thrown out by a blast, or reft from their original stratum by some convulsion of nature, while down below in the torrent beds, their features are rounded, their angles worn away by attrition and the action of water, till often their surfaces are fairly polished. A little further on, and for the first time since leaving the valley, we emerge in full view of Mt. Kinneyloa. This is a spur from the main ridge, running out in a southern direction at nearly right angles, and has the general contour of a lofty headland or promontory jutting out into the plain. Viewed from below, Mt. Kinneyloa appears like an immense number and endless variety of rocks *piled up* in the most promiscuous manner. To the observer in the valley it seems higher than the main ridge, and is sometimes mistaken for Mt. Wilson itself, though



The Wilson Trail, Showing the Trees.

it is really three hundred feet lower. This is a spot much frequented of late, because it affords a fine point of observation, having a large scope of horizon on account of its singular position. Its highest point is distant about one mile from Wilson Peak, and is reached by a footpath branching off from the "old trail." This curious mountain spur forms the divide between the Eaton and the Santa Anita canyons, and is so precipitous along portions of its sharp backbone, that rocks thrown down on either side, will not stop until they reach the bed of the mountain creeks, perhaps 1,000 or 2,000 feet below. Such a favorite pastime has this been with visitors that hardly a rock of moveable size, that is big enough to make a racket in falling, can be found in these sections of the ridge pathway. About half way between this peak and Mt. Wilson a saddle or depression in the connecting ridge marks the head of the west fork of the Santa Anita canyon. When the Harvard telescope was taken up a camp was established here for the accommodation of the workmen, though it required the labor of two men half a day to clear off and level ground enough for a couple of tents. After the workmen left, a Pasadena caterer conceived the idea of establishing a permanent camp for the entertainment of visitors. And he made a success of it, notwithstanding it was near 5,000 feet above his base of supplies, which must all be conveyed thither on the backs of animals. Yet his guests were treated to all the market affords—fresh meats, fruits and vegetables, which the fierce appetites of mountain climbers could not fail to appreciate. This mountain restaurant business grew apace; more ground was cleared and more tents erected, until now the "camp" has the appearance of a miniature village. And, though the place has changed hands, it still continues to enlarge its borders, compelled thereto by the ever-increasing throng of sight-seers. This station or camp is a half mile below the summit, as the old trail goes, but it has a fine outlook to the south and west, and a few minutes' walk will



Map of the Mt. Wilson Road.

take you to the points of rare interest. But the train moves, and winding gracefully round the head of Eaton canyon, gradually gains in its northwestward sweep a low point of the main ridge, where the track passing over, doubles back upon the northern slope. But before making the last principal curve let us take a comprehensive view of the great amphitheater, along the upper edge of which we have been skirting to reach the crossing point. Before gaining the little village of tents we had been going to the southeastward, but since passing that location we been retraversing the same slope, only at a higher level, from which the view baffles description. You pass in review almost the entire route over which you have come, and wonder how, almost unconsciously, you have been conveyed to such an altitude. Directly below you lies the great basin into which the canyon we ascended has conducted us. Glancing back at its tortuous and oft-hidden course, we can see how spurs from the mountains on either side continually project themselves into its bed, as if enviously trying to prevent the formation of a highway by which the waters of this broad depression might have egress to the thirsty plains below. Scattered through the basin are baby mountains of cone-like form, clothed, like their more pretentious neighbors, with forests of pine and fir. Countless ravines seam the rim of this great upper valley, which all pay their winter tribute of water to the main stream that forces its way down the great canyon, while here and there we see the beetling precipice, on whose side no foothold could be found, yet the top is crowned with lofty trees. This description of scenery would be incomplete did we not pause to review the flora of the region through which our railway has passed. For miles before we reach the base of the mountains, there are, in springtime, great fields covered for weeks with the brilliant California poppy, so bright with color as almost to dazzle the eye and to be visible many miles away. As the mountains are entered we find a variety of wild flowers that grow nowhere else, and exhibit tints and fragrance not met with in garden or conservatory. They do not bloom early, but many may be found during the entire season.

We are at the crossing-over point of the mountain ridge, and must course along its northern slope, losing sight for a few minutes of the enchanting vision over which we have been lingering. The outlook now is all to the northward, and a wild wilderness of mountain peaks and ranges meets the eye. Soon the final station is reached, and we leave the car, while the mind, already weary with the contemplation of preliminary wonders, briefly folds its wings and permits the bodily frame to partake of the good cheer appropriate to the place and occasion.

Standing upon the crest of Mt. Wilson, and looking directly west, you find the view intercepted by "The Commodore," 600 feet higher than your present position. North of this peak, and across the valley of the Arroyo Seco, are two cone-like peaks—the Big and Little Strawberry mountains, the former standing 7000 feet above sea level, the peculiar shape of their summits suggesting the nomenclature. Turning half round your attention is attracted by a mountain that differs in appearance from all the others. It is known as Barley Flats, because, being covered with a variety of wild rye, or cheat wheat, its general appearance resembles that of a barley field. The surface is free from rocks and underbrush, and, though rolling, has no precipitous slopes, while the umbrageous pines scattered over it make it look not unlike an immense park. Its distance is five miles away, but you are separated from it by the valley of the north fork of the San Gabriel River, and the adventurer who thinks to walk over some pleasant morning before breakfast, will find that he has to descend a steep mountain side of about 2000 feet — vertical distance — and scramble up an equally rough path to the same altitude on the other side.

It is a good day's journey to go over to Barley Flats. This north fork furnishes fine fishing, as it abounds in mountain trout. A half mile east of the observatory stands Echo Rock, and from this point can be obtained one of the grandest views the world affords. Stretching away easterly for eighty miles lies a vast sea of mountains, distinct in their outlines, and covered generally with vast primeval forests that have yet to hear the echo of the woodman's ax. The first prominent peak to attract your attention is Mt. San Antonio, or "Old Baldy," 10,000 feet high, and then comes the Cucamonga Peaks, of nearly equal altitude, while in the distance lies San Bernardino—the base line peak—"Old Grayback," 12,000 feet high, and Mt. San Jacinto, of a height somewhat less. These last two stand on opposite sides of San Gorgonio Pass like grim, hoary sentinels at the gateway into the paradise of the coast. But these great peaks are so distant that Mt. Wilson loses nothing of its height by comparison with them. Now we return to the contemplation of what the south and southwest can reveal—the scenes last and brightest of all in the round of the horizon. At our feet lies Pasadena, already passed in review. Beyond its confines the eye falls upon the great Raymond Hotel, where hundreds of tourists find one of the best of winter homes, and to whose hospitable halls many of them return year after year, so potent are its attractions. South Pasadena and Alhambra lie just beyond; Duarte, Glendora and Whittier can be seen; while Azusa, Covina, and, last and most ambitious in her outreach for distinction, the city of Ramona, are all within the scope of vision. Other young towns might be named, but Los Angeles, the queen of them all, appears in the southwest, while the seaside resorts are discernible beyond.

What is this glory of celestial blue that lies gleaming on the horizon? The ocean on which Balboa first looked from the Isthmian mountains, and which Magellan first traversed 370 years ago—it is the Pacific that rolls before us, and only about thirty miles distant on a straight line. Out in the blue deep, some twenty-six miles, can be seen the island of Santa Catalina. Its general appearance, as outlined against the sky, is that of a continuous low mountain, with a depression near the center, which almost severs it in twain. But, under atmospheric conditions favorable to *mirage*, it will assume many grotesque forms. I have seen the eastern end, which is really a gradual slope, apparently rise in the air like a perpendicular cliff 1000 feet high, and at times even to overhang the sea. Occasionally a portion of the ridge will assume the shape of a high table of land, upon which appear forms resembling castles and towns, with pillared colonnades, or rows of immense columns standing roofless, reminding one of pictures of the ruined temples of old, or of the unearthed remains of Pompeian splendor. San Clémente is another island made interesting by the archæological treasures found there. Farther north lies the island of Santa Barbara, opposite the city of the same name. The surf on some portions of the shore-line is plainly visible when the light is favorable, as also the shipping, sometimes as far as the harbor of Avalon, in Catalina. Let us round out our day of high enjoyment by watching a sunset on the Pacific. Word-painting of the scene is all too weak—let imagination wrestle with it alone. Now the landscape darkens and the shadow creeps ever higher up the mountain side, while below, from the cities of Los Angeles and Pasadena, the electric lights flash out until at last, down in the broad valley, there seems a constellation that endeavors to outrival that in the heavens above.

Again, we wake from a most refreshing sleep to witness a sunrise from the summit. We stand on what seems a celestial vantage ground; but how changed the scene from yesterday! A snow-white sea of fog covers the broad valley, leaving only a few hilltops, like islands, above the gently shifting un-

Car Going up Eaton Canyon.

dulations—while above, the sun pours his full radiance on the wonderful *fleeciness* of its dazzling surface. Imagine the effect—it cannot be told. When the eyes become weary from its contemplation, let us rest them by examining the ground about our feet. Its most striking characteristic is a remarkable unevenness. There is no *level* plateau up here, and scarcely a spot can be found large enough to spread a blanket without finding too much slope to allow one to rest comfortably upon it. Still it is not desert-like, for everywhere there is vegetation, varying from the lowly flower to the lofty forest tree. But the fog is scattering, and we can see its remnants floating as bright clouds far below.

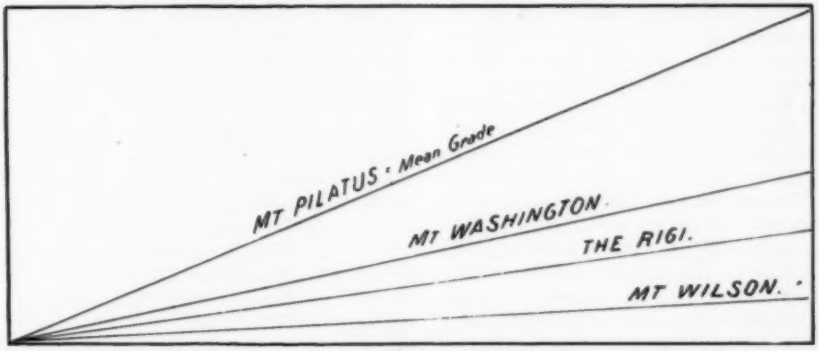


Diagram of Grades.

The beauty and grandeur of the scene are enhanced by the revelations of our second day on the summit, and one feels the inspiration that naturally possesses those who find themselves elevated above all their near surroundings.

To visit the Pacific Coast and fail to ascend Mt. Wilson will, in the future, seem as absurd as to go to Egypt and not look at the pyramids, or journey to Rome and neglect to examine the Coliseum or view the Vatican and St. Peter's. Mt. Wilson is destined to become the Mecca of tourists in Southern California; it will be sought for summer residence by many who prefer the highland air to that of the sea shore, as soon as the railway shall make it entirely accessible. Nor will it be a favorite resort in summer only. When the eastern tourist becomes tired of our midwinter surroundings of dark-green orange groves, spangled o'er with golden globes—when he wearies of the springtime verdure of barley fields and alfalfa plot, he can, in two hours' time, betake himself to the cold region he longs for—he can find a mantle of snow covering the rocks of some of the remoter slopes, and gathering heavy on the cedar branches in some dark ravine, and enjoy snowballs, and, perhaps, a toboggan slide, or skim on the flying skates over the frozen surface of the artificial basin already planned for the delight of such as he. There is room for hotel and summer cottage; there will soon be extra buildings for scientific purposes, with numerous other attractions. And when one wearies of the wind and cold of the summit, he has but to step on the car and glide down to sup and sleep among the roses and orange groves of Pasadena.

The Mt. Wilson road possesses advantages that others do not. Most of the mountain railroads already built are in latitudes that render them unavailable except in the summer. That on Mt. Washington has a "season" averaging less than three months, while the road up Mt. Wilson will be serviceable the entire year. The local population around Mt. Washington is small, so that most of its patronage must come from distant cities, while

within one hundred miles of Mt. Wilson live almost half as many people as appear in the census of the whole State of New Hampshire. The Mt. Washington road needs endless repairing on account of the extensive use of timber supports in its construction, while on the California road nearly the entire structure will rest on a foundation of solid rock. More people already visit Mt. Wilson annually, with only foot and saddle for conveyance, than are accustomed to ascend Mt. Washington, although a good carriage road exists to above the timber-line. Owing to our southerly position Mt. Wilson is clothed with forests to the summit, while for quite a distance below the crest of Mt. Washington bare and barren rocks alone greet the eye. During the brief summer season frequent clouds and rains often disappoint the tourist in the outlook he desires, while on Mt. Wilson, taking the whole year, rainy season included, probably not more than one day in fifteen would prevent "full, unclouded vision."

The nearness of the ocean, with its attractive beaches and hotels, gives an advantage to Mt. Wilson, with which the inland situation of Mt. Washington cannot successfully compare; while the great observatory will add a unique attraction to persons of scientific tastes who wish to take their vacations on this coast.

A comparison of the real usefulness of the roads already built with the proposed one is fraught with interest. It can readily be seen that the easier the grade on a mountain road, the more it can do in the way of transporting supplies of all kinds, especially of building materials. The railway on Mt. Washington has to overcome an altitude of about 3,700 feet in three and a half miles—average grade, one foot in about five. That on Mt. Rigi reaches an elevation of 4,368 feet above its starting point in five and one-fourth miles of track, being a grade of about one foot in seven. On Mt. Pilatus an altitude of 5,344 feet is reached with somewhat less than three miles of track, necessitating the almost unparalleled steepness of grade of one foot in a little less than two and a half. The road up Mt. Wilson will "take it leisurely," using over twelve miles of track in making the vertical ascent of about 4,700 feet, rendering this railway capable of doing a fair transportation business in all lines necessary, the grade averaging only one foot in over fourteen. Hence, a higher speed can be maintained with an equal amount of motive power. The accompanying diagram will show the relative gradient lines of these four mountain railroads.

It is interesting to know that each and every one of the roads has yielded a large per cent on its cost, in short, has been a paying investment. It is believed that Mt. Wilson will pay better than any of the roads mentioned, besides exerting a far-reaching influence on the immigration to Southern California, and on the character of that immigration. We are told that fares will be lower on the Mt. Wilson road than on the others, on account of its greater patronage in the fourfold length of season. The motive power used will probably be electricity, since engines of less weight in proportion to their tractive force can be employed. The road is to be built and equipped in the most substantial manner, and furnished with every known appliance for safety and comfort. And when citizens of Lower California conclude to make summer homes among the wholesome pines of the upper heights, they can be carried to and fro on commutation tickets as readily as between Pasadena and Los Angeles; while the longer time it requires will be more than made good by the enjoyable nature of the trip. The rate of speed, though not expected to equal that on ordinary railways, can easily be made to double or triple that of the steeper mountain roads.

THE NEW PARTY: WILL IT SUCCEED?

By Ex-Governor Lionel A. Sheldon.

BUT one third party has ever been formed in this country, which gained control of the government and maintained it for any considerable period. Others have arisen upon local or temporary issues, and have disappeared without achieving more than local or temporary success. That such should be the result is philosophical, for it is only under extraordinary conditions that more than two parties are necessary. When particular issues are disposed of parties need not disband, for new issues appear with a continuity that characterizes the waves of the sea. On new questions individuals change from one party to another as their convictions dictate. In this way, and through changes of views, transformation of parties often takes place. When there are several issues before the country it is not infrequent that individuals differ with their party upon one or more of them, and in such case the proper course is to strike a balance and vote as in their opinion will best promote the general welfare. Party allegiance is not regarded by intelligent and independent men as a perpetual obligation. Hence, as a rule, evils are remedied and reforms are accomplished without the interposition of a third party, and through changes from one to another. Ours is a government founded upon and controlled by popular opinion, a fact which political leaders fully understand, and every party, for the sake of success, if from no higher motive, will yield to popular demand. It has never been difficult to press one of the parties into the support of meritorious measures, and it has been found to be more practicable to promote the success of a cause inside than outside of the party. These recognized truths constitute serious obstacles to the success of the new party movement.

Another difficulty is encountered at the outset. Every man who has a new idea that he wishes to propagate or a scheme to promote will apply to the new party for an indorsement. Those of extreme views are the first to be attracted to it, and if recognized in the platform they repel the large class who are disposed to proceed through evolutionary processes, and to "make haste slowly." If the extremists are not recognized to their satisfaction they become a refractory and disturbing element. Americans are generally conservative and are not disposed to attempt to reach results at a bound. To succeed it is necessary for the new party to combine several elements whose interests are in substantial harmony, and it must avoid disregarding the legitimate rights and interests of any class. And further, it will be necessary to convince the majority of the people that the removal of existing evils cannot reasonably be expected through the action of an existing party. At the present time complaints are against the money power and of the laws which it is alleged sustain and give it special advantages. Numerous remedies are proposed, which will pass through the ordeal of discussion until February 22, 1892, when the convention of the new party will assemble and promulgate its platform. It is impracticable to discuss them in detail in this article. In considering the principal ones the inquiry will be as to their merits and whether it is probable that neither of the old parties will deal with them in a reasonably satisfactory manner, and also whether the interests of the several elements sought to be combined are not so conflicting as to prevent harmonious action.

The activity and energy displayed by the advocates of a new party tend to impress the public mind with the idea that it will achieve success without serious resistance. It will be un-

safe to assume that the old party leaders will be idle. Neither party will retire from the field without contesting the ground inch by inch, and both will put themselves in the best possible position to command popular support. A session of Congress will commence on the first Monday of December. Each party has a majority in one of the branches, and will maneuver not only to outgeneral its old-time antagonist, but to satisfy the elements which the new party promoters are endeavoring to combine. It is true that the Democratic and the Whig parties were so environed as national organizations when the Republican party was formed that it was impossible to commit either to the cause of freedom. It may be that the Democratic and the Republican parties at the present time are so allied to the money power that they cannot be released from its clutches, but it is more probable that one or the other of them will be forced by popular sentiment to favor measures that will afford partial if not complete relief from present evils. It will be nine or ten months before Presidential candidates will be nominated and national platforms promulgated. It is more than probable that some of the measures proposed by the new party will be approved by one or both of the old parties.

Complaints of trusts and combinations formed by capitalists have already been heeded. The last Congress passed an anti-trust law, and probably went to the verge of constitutional authority. Some of the States have enacted similar laws, and the courts, whether there exists special anti-trust legislation or not, have uniformly declared trusts to be contrary to public policy and unlawful. Both of the old parties appear to be ready to pronounce in favor of the absolute suppression of trusts of every name and nature. Neither has failed to recognize the existence of abuses in railroad transportation, nor to take steps toward their mitigation. Congress enacted the interstate commerce law, which prohibits unjust discrimination and enforces good service. All the States have laws of a similar character, and which are more or less effective. In many of them maximum rates are prescribed, and in some, commissions are empowered to fix them upon local or State traffic. Outside of interested parties, none deny the power of Congress to regulate charges in interstate, or of the States to do likewise, as to local transportation. It is an old and just principle of the common law that the carrier is entitled to receive a reasonable compensation for his services, and it is well settled that the national and State Governments, within their respective jurisdictions, may provide the mode for determining what is a reasonable compensation. It will require but little pressure to induce either party to go to the length of protecting the people against exorbitant charges. If there is sufficient strength to assure the success of the new party, it ought to be an easy matter to control the action of one, at least, of the old parties, in regard to railroad transportation. The proposition that the Government shall own and operate the railroads will generally be regarded as extreme. The country is not ready for it, though such a policy has been successful in other nations, and the practicability of placing all the roads under one management has been well nigh demonstrated by the systemization that has already taken place. A deep-seated feeling has always existed against enlarging the powers of the Government, and opposition to the increase of patronage which such a policy would involve, has become generally prevalent. These elements would be joined by bond and stockholders, and all others interested in railroads, in combating the measure with all their powers. If the new party platform goes to this extent it would be ill-timed and fatal to its success. Making the telegraph a part of the postal system is not a new idea. In 1884 the Senate Committee on Postoffices and Postroads reported in favor of it, and in its support Senator Hill, of Colorado, its Chairman, made an unanswerable speech. The pres-

ent Postmaster-General urged the matter upon the last Congress. For many years a considerable number of members of Congress have favored the measure, and it does not seem that it would be difficult to secure its passage without the creation of a new party.

The graduated income tax is evidently growing in favor, for the Ohio State Democratic Convention lately declared for it, and there seems to have been no opposition in that body. As a check upon the further accumulation of wealth by the few it has merit, but the best feature is that it recognizes the benevolent principle that the burdens of government should be borne by those most able. It is a usual tax in other countries, and an income tax was imposed in this during the war, and was continued for several years thereafter. The objection that it is inquisitorial lies to all tax laws, and if for that reason it should not be imposed, then all taxes should be abolished. To favor it would add strength to any party. There are many evidences that it will be adopted, sooner or later, by one of the old parties, under the pressure of popular demand.

On the money question the new party will be most strongly resisted, and in regard to that it is in some danger of overstepping itself. That increase of the volume of money should keep pace with the growth of population and production will hardly be gainsaid, and that there has been serious contraction when there should have been liberal expansion cannot, in truth, be disputed. Among all classes, except the money kings, there is demand for more money, provided it is good, but nobody wants any that is bad, and that is bad which is generally discredited. There can be no doubt that, as the world has been educated, money coined from the precious metals is regarded as the best, and few people, if any, are disposed to resort to any other, provided enough of that can be obtained, and all prefer paper money which is redeemable in coin. In order that there may be an enlargement of the circulating medium, free silver coinage is urged. It is not merely for the sake of enhancing the price of silver bullion, as some of the mono-metalists affect to believe. Silver is discredited for monetary uses simply because it is measured by gold, which has a prescribed and unchangeable value by law. Bi-metallists propose that the law shall regulate the value of silver the same as it does gold. Free silver coinage is desired, for the reason that it will increase the volume of good money. It is not a party question, for it has friends and opponents in both parties. The Senate, as now constituted, is committed to free coinage, and it is supposed that the House of Representatives will favor it by a large majority; and it may be confidently expected that within the next eight or ten months a free coinage bill will be presented to the President for his signature. If he signs it the question will be disposed of, but if he vetoes it, and it is not passed over his veto, it will be one of the most important issues of the Presidential campaign. The Eastern States are understood to be opposed to free coinage, and the States east of the Appalachian Mountains and north of the Potomac, may be able to dictate the platforms of both the old parties. In such case a new party, favoring free coinage, would have great strength in the South and West.

The annual silver production of the world is about $120,000,000, nearly one-half being in the United States. If the uses of silver were enlarged production no doubt would be materially increased, and free coinage in a little time would probably enhance our circulating medium $100,000,000 annually. Our annual gold production is about $33,000,000, but no more than $25,000,000 can be calculated upon for coinage. It is possible therefore that our coin money may be increased $125,000,000 each year. As that will not be sufficient for several years to come on account of the small volume of money we now possess, some way should be devised to secure a further expansion. It was supposed when the free national banking law was passed

that expansion would be ample to meet the wants of business through the voluntary action of the banks themselves, but they have demonstrated that they disregard the public interests altogether, as, seemingly by concert, they have produced contraction when it was most hurtful. The people have lost faith in them. The new party proposes, so far as indications go, up to the present time, to provide more money by the issue of treasury notes. It cannot be expected that either of the old parties will declare in favor of this proposition. It will be strenuously resisted by the money power, but it will have a strong support in the South and West, and it will not be wholly in disfavor in the East. If the new party confines its financial policy to free coinage of silver and the issue of treasury notes, it will have great strength in a large part of the nation. The proposition to loan money at 2 per cent. upon land mortgages and pawned imperishable agricultural products and to issue certificates thereon, which shall pass as money, is without precedent in this country and results, of similar schemes elsewhere have generally been disastrous. It will certainly encounter the energetic opposition of capitalists, will not be fav red by manufacturers who are not accorded the same privilege as to their products, and the wage-workers and the non-borrowers will receive no direct benefit from the measure. It involves the creation of a vast and expensive machinery, and the utmost confusion and turmoil may be expected when the Government is compelled to resort to foreclosures and sales to collect its dues. It is necessary for governments to be as prompt to collect as to pay. It is presumable that every man who owns land and is in debt and is paying a higher rate of interest than 2 per cent. will borrow of the Government, and if what is alleged as to the aggregate of existing land mortgages is but half true, the volume of certificates that would be issued would create an inflation more hurtful than any stringency the country has ever experienced. When the quantity of certificates that would be issued upon cotton, wheat, corn and other products is contemplated one becomes bewildered. The measure has a single merit—that it would reduce interest rates, but if there is a sufficiency of money interest will be brought down through the law of supply and demand, and if this does not accomplish all that is desired the balance can be attained by the enactment and rigid enforcement of effective usury laws. Upon this question the Farmers' Alliance appears to be divided, and it is not probable that it will be indorsed in the new party platform, though the proposition is supported by men of ability and influence.

There are certain economic and commercial policies which have a direct and important bearing upon the money and labor questions, and upon which the new party cannot avoid expression. If we import less and export more the balances of trade in our favor will be enhanced, and so long as gold is recognized as the only medium of international exchange, they will be paid in that kind of money, which will materially add to our circulating medium that which all nations pronounce good. Our importations will be less if we manufacture more, and our exports will necessarily be increased if we possess ships with which to do our own transportation upon the high seas. English, German and French shipowners and captains are so many solicitors of trade, and through their efforts exportations from their respective countries are largely increased. We are nearly destitute of such agencies, because we possess but few ships engaged in foreign trade. It is estimated that we annually pay to foreigners $100,000,000 for carrying freight and passengers. This immense sum might be saved if we had a merchant marine sufficient to do our own work, and our people might earn something in transporting for others. We are the greatest producing-nation in the world, and it is highly important that we should have all the markets we can get, both at home and abroad. To enlarge and

diversify our manufacturing industries will not only tend to reduce importations, but will afford markets at home for raw materials and for all classes of food articles of domestic production. To foster and build up industries, and a merchant marine will greatly strengthen our money resources and afford wider fields for the employment of our rapidly increasing working population.

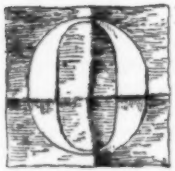
Upon these questions there may be irreconcilable differences among the elements sought to be brought into the new party. The effort is to combine Democrats and Republicans who heretofore have held antagonistic views; farmers of the North and South whose education and interests have been unlike. The people of the South have been schooled for half a century in the Calhoun economic theories and have never manifested a taste for maritime pursuits. The farmers of that section, as a whole, produce no surplus of food articles, and there has been no incentive to manufacture, that they may have more home people to supply with food. American cotton is so superior to any produced elsewhere that there has been little difficulty in finding a market for it, and the Southern people have not manifested by their works, except on a limited scale, that they realize the great benefit that would result to their section by exporting their cotton in the fabric rather than in the bale.

The Northern farmers have been taught a different theory, and they recognize the value of having domestic markets. It is not reasonable to suppose that the wage-workers will favor a policy that fails to give them protection against cheap foreign labor, and that cannot be done except through the recognition of the protective principle in tariff legislation. It is highly important that financial legislation should be more liberal; that abuses by trusts and in transportation should be removed; that communication through the telegraph should be cheapened, and that revenue laws should be so changed as to lighten the burdens of the toiler, but these are all overshadowed by the problem of giving employment to our laboring people in the future at adequate wages, and of surrounding them with elevating conditions. Agriculture is overdone, mining will not materially increase, and railroad construction will be less. Under present conditions we have a surplus of labor in the nation, and it is destined to be greater as population increases. The only means of affording appreciably larger opportunities for work are in manufacturing, and building ships and operating them in foreign commerce. On these questions the two old parties hold opposite views, and the new party cannot avoid taking one side or the other, for there seems to be no medium ground, and, so far as they are concerned, a new party does not seem necessary, for it will have no argument to make against one of the old parties. All parties, and the great mass of the people, are opposed to the importation of cheap labor. The laws discourage and restrict it in many ways, and they are being rigidly enforced. If further legislation appears necessary, there can be no doubt it will be enacted without opposition.

There is, undoubtedly, a great deal of dissatisfaction in the country, and such times are fruitful of suggestion and productive of unusual activity. The list of measures already proposed is very long, and all of them will be supported by earnest and persistent advocacy. In condensing and discarding, the convention, which will assemble in February next, will have a delicate work to perform. It may be restrained from going far enough, or it may be pushed to taking extreme positions. Danger lies on both sides. Its action will be taken in advance of that of the other parties, which will give them opportunity to concede all they think they should, and to take advantage of any mistakes that may be made.

SOME FOLK-SONGS OF THE SOUTH.

By David Starr Jordan.



N the cliffs above Cedar Creek, a mile or two below the famous "Natural Bridge" in Virginia, is a beautifully situated but unpretending little hotel. Over its door is the modest sign, "Pine-Laden Inn for Collard."

This is the resort of the elite of the colored population of Virginia when they come to visit the grandest scenery in the Old Dominion. In this little inn are enacted, in a fashion, all the various scenes which take place in the more pretentious inn "for whites," above. The sentiments which move society in the lower hotel are little appreciated by their neighbors. The carefully attired waiter who serves in the white-man's hotel is very different from the black man who is free among his own race to seek his own pleasure.

The white man has not failed to interest himself in the negro, and our literature is rich in songs of negro life which the white man has written for him. Some of these are among the most charming or most touching of the minor poems in our literature.

They are not, however, the songs or poems in vogue at "The Pine-Laden Inn for Collard." The society which is gathered there has its own songs and its own poems. Of these poems, composed by the negroes themselves, for themselves, the genuine folk-songs of the black people, very few have ever come to the notice of the white people. These few are chiefly the religious songs which have become familiar to us through the pilgrimages of the Tennesseeans and other companies of "Jubilee singers."

In the present paper I wish simply to put on record a few fragments of genuine negro poems which I have gathered in different parts of the South. They have little merit or interest from any literary standpoint, but they are worth preserving because they were composed by the negro and for the negro. So far as I know none of them have been printed, and none of them have any "burnt cork" * adulteration. The negro minstrel, black or white, is an artificial product, and is native to no soil.

First of these is a fragment from Eastern Virginia, from one of those endless poems sung in the evening at the quarters, and to which many impromptu additions are made, as the song goes on. In verses of this kind usually a single person will sing the words of the theme, the others all joining in the chorus. This gives great scope for improvisation, and often the results of a happy thought will be approved by the others, and so form an accretion to the original song.

A worthless song which is thus frequently used to build upon, is this:

I went down to the river and I couldn't get across.
Chorus: Allelu-allay.

I paid three cents for an old black hoss.
Allelu-allay.
It was lame in one leg and couldn't walk on t'other.
Allelu-allay.

Blind in one eye and couldn't see out of t'other.
Allelu-allay.

MASSA'S PROMISE.

My old Massa promised me
That when he died he'd set me free,
But my old Massa dead and gone
And still old Sambo's hilling up the corn.

They took me down to the tater-hill
And made me dance agin my will,
They made me dance on sharp-toed stones
Till all the drivers left and gone.

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* Of "burnt cork" origin is probably the following, also obtained in the South:

What kind of shoes do the angels wear,
That they can climb up the golden stair,
And walk all around till they reach the very top,
Then shake down nickels in the missionary box?
Say, angel—meet me at the crossroad, meet me.
Angel, meet me at the crossroad, meet me;
Angel, meet me at the crossroad, meet me;
For I'se gwine to pay no toll.

Also from Eastern Virginia comes this striking account of

THE CREATION OF THE WORLD.

The world was made in six days
And finished on the seventh;
But according to the contract
It should' a' been on the 'leventh;
But the mason he got drunk,
And the carpenter couldn't work,
And the cheapest way to do it
Was to fill it up with dirt.

A touching fragment is this, obtained in Jefferson county, in East Tennessee:

I hear my children calling;
I see their warm tears falling,
And I must go.
For I was born in Georgia;
My children live in Georgia,
And I must go.

From the same locality comes the following striking picture of true love:

I said I'd built a cabin,
I asked her would she come?
And she flung her arms around me
Like a grapevine round a gum.
Chorus: Get along, Joe Clark, etc.

In Carteret county, in Eastern North Carolina, the following is sung in connection with the parlor games in the best society:

MISS JULIE.

O, round the ring, Miss Julie;
Round the ring, Miss Julie;
Round the ring, Miss Julie;
O, long summer's day.
The stars shine bright,
The moon looks light;
O, look away over yonder
And see some pretty little colored girl
And tell her how you love her.

In the same county of Carteret the boys sing and "pat" the quaint air of the

GEORGIA RABBIT.

Georgia Rabbit, whoa, whoa!
Georgia Rabbit, whoa!
Stole my lover, whoa! whoa!
Stole my lover. whoa!

Gwine to git nudder one, whoa, whoa!
Gwine to git nudder one, whoa!
Jes' like t'udder one, whoa, whoa!
Jes' like t'udder one, whoa!

Another song without end, having its origin at Beaufort, North Carolina, begins with the following verses:

When I was a little boy
I lived in Sugartown;
I climbed up in the sugar tree
And shook the sugar down.

Chorus: So get on the mountain train;
Get on the mountain train;
Get on the mountain train,
Until your ankles swell.

And Captain Alexander,
. . . . . *
He made me wear a ball and chain,
Until my ankles swell.
Chorus, etc.

I may close this series with a fragment current among the "poor whites" in Rabun county, Georgia, the work of a local poet of Rabun Gap:

THE GOOBER GRABBLER

A soldier sat by the road one day,
And he was looking very gay,
For on his back he'd a bag of meal
Which he had stolen from an old Tarheel.†

Chorus:
Bye and by, by and by,
Marry a girl with a bright blue eye.
Georgia girls there's none surpasses,
For they are fond of sorghum molasses.

He built him a fire to bake his bread,
And when he was done he gaily said:
"Nothing in this world surpasses
Good cornbread and sorghum molasses."
Chorus.

In Alabama they do eat peas;
In Tennessee just what they please;
In North Carolina tar and rosin,
But the Georgia girls eat goobers and sorghum.
Chorus.

As I was going through the Georgia towns,
The Georgia girls came snooping round.
Says they: "Young man, be you a traveler?"
"No, pretty miss; I'm a goober ‡ grabbler."

* This line is better omitted.
† A native of the Tar State, or North Carolina.
‡ Goober, the peanut, commonly accepted as the emblem of Georgia.

PALO ALTO, CAL.

CALIFORNIA'S CLIMATE.

By Walter Lindley, M. D.

THE title of this paper is a misnomer. California has no one climate that she can distinctively call her own. The writer, in Auburn, Placer county, Redding, Shasta county, in the Strawberry Valley of the San Jacinto Mountains, or San Diego county, in telling of California's climate, will describe the rare atmosphere of from 5,000 to 10,000 feet above sea-level, redolent with the fragrance of pine forests, where the deer, the antelope, the bear and the California lion furnish entertainment for the sportsman; where beautiful mountain brooks, alive with trout, give the disciples of Izaak Walton rare opportunities, and where the majestic crags and chasms and the white-hooded peaks, surrounded by wonderful vistas of villages, cities, rivers and ocean, supply an irresistible inspiration for the artist and the poet.

Who will acknowledge, though, that the climate of these mountains, unsurpassed by that of the Swiss Alps, is California's climate?

An American of wealth is establishing a sanitarium in the valley of the river Jordan, near the Dead Sea. He ascertained that a bronchial affection was relieved where the barometric pressure was great, as it is in this valley of the Holy Land. This is the most marked depression on the face of the earth, being 1,200 feet below sea-level. This gentleman makes the reasonable assertion that where atmospheric pressure is greatest, as in the depressions, respiration is easiest.

In the eastern part of San Diego county, about one hundred miles from Los Angeles, is a depression traversed by the Southern Pacific Railroad, known to geographers as the San Felipe Sink, but commonly called—on account of the innumerable shells spread over its surface—the Conchilla Valley, and now of especial interest, because of the new lake forming from the overflow of the Colorado.

The unobserving transcontinental traveler over the Southern Pacific Railroad would travel the one hundred miles west of Yuma—on the Colorado river—without giving a glance out of the car window, as he would think he was on the Colorado Desert, and wish the train would go faster; yet this very spot is one of the most remarkable on the face of the globe.

Dr. J. P. Widney, of Los Angeles, while surgeon in the United States Army, crossed this region with troops twenty-one years ago. He then noticed surrounding this territory a well-defined line along the mountain sides, always at the same level. Above that line the rocks are sharp and jagged, showing that for ages the water had stood at that level. He says: "I found it to be the old beach of a sea." I find nothing else noted of this country until the surveying party of the Southern Pacific Railroad, in running the line from Los Angeles to Yuma, found that sea-level was at the point where Dr. Widney had noted the ancient beach. They then gradually descended to the south until they reached a depression of two hundred and sixty-eight feet below sea-level, at a point near Salton.

This basin is about one hundred and thirty miles in length by thirty miles in average width. The deepest point is about three hundred and sixty feet below sea-level. Along the northern margin of this basin, right up against the mountains, are great numbers of date palms. These tropical trees are indigenous to this valley, and many of them reach a height of eighty feet. When ripe, a single bunch of fruit weighs one hundred pounds. It has a

taste very similar to the date palm of commerce. The tree has large fan-leaves, and is the same as can be seen in almost every park and yard in the towns of Southern California. The passenger on the Southern Pacific Railroad, by glancing out of the north side of the car at Indio, can see these giant sentinels keeping silent vigil over the plains beneath them.

At Salton, on the Southern Pacific Railroad, the surface of the earth for nearly ten miles square is covered with a crust of salt from four inches to a foot thick. I stopped there in midsummer, before the waters had flowed in and formed the present lake, and went out on this great white field about noon. The mercury indicated 105° Fahrenheit in the house, but out in the sunshine, with the dazzling reflection from the glistening surface that extended for miles on each side, the temperature was probably 130° Fahrenheit. The workmen out in this peculiar harvest-field were as cheerful as any set of men I ever saw, and there was far less exhibition of suffering from heat than is to be seen, ordinarily, in July, in the wheat fields of the Mississippi Valley. The low relative humidity * explains the total absence of sunstroke here. The atmosphere in this region, adulterated by the chlorine gases emanating from the salt beds, must be nearly aseptic. There are extensive mills here for grinding the salt. It is not put through any system of purification, but, after grinding, proves to be excellent for table use. Several hundred tons are thus prepared every month and shipped away.

A few miles east of here are the famous mud volcanoes, which are equal in wonder to the geysers of this State. Owing to the treacherous character of the ground around them they have never been thoroughly examined. Professor Hanks, the State Mineralogist, undertook it, but breaking through the crust he was so severely burned that he was compelled to abandon his investigations. Here is an extensive, almost unexplored field for some adventurous scientist.

Indio is the place to stop and make headquarters for tours through this interesting country. It is the principal station in the valley, and near the northern rim of the basin, being only twenty feet below sea-level. The sandy plains around Indio were formerly considered a hopeless, barren waste, but the advent of the railroad has made great changes. Good water is supplied by surface wells; but in order to have water for irrigation, artesian wells have been bored. There is one two and three-fourths miles east of Indio that is now flowing one thousand gallons per hour. This flowing water was reached at a depth of only one hundred and fifteen feet, after boring through layers of sand, clay, sand, tough blue clay, clay, coarse gravel, clay and sand. Oranges and various other kinds of fruit are being grown here, and melons, tomatoes and berries ripen several weeks earlier than in Los Angeles and other places near the coast. There are in this vicinity about forty thousand acres of excellent land. The visitor here, on witnessing the water flowing from the artesian wells, the grass growing, the melons ripening, and the peach trees blooming, can fitly say with Isaiah: "The Lord shall comfort all the waste places. He will make the desert like the garden, and the desert shall rejoice, and bloom as the rose. For in the wilderness shall waters break out, and streams in the desert. And the parched ground shall become a pool, and the thirsty land springs of water."

In this valley live about four hundred of the Cohuilla Indians. This is an interesting tribe. Dr. Stephen Bowers, in a paper read before the Ventura County Society of Natural History, March 5, 1888, said that he believed them to be of Aztec origin. They are sun and fire worshippers and believe in the transmigration of souls, and that their departed friends sometimes enter into coyotes, and thus linger about their former habitation.

* If the lake is permanent, the conditions here will be materially changed.—EDITOR.

They practice cremation. Their principal article of food is the mesquit bean, which they triturate in mortars of wood or stone, after which the meal is sifted and the coarser portion is used as food for their horses and cattle, and the finer is made into cakes for family use.

The agave, or century plant, which is indigenous here, is also much used for food. The roots, roasted, taste like stewed turnips, while the stem, roasted, is said to taste like baked sweet potatoes. From this plant they also make the Mexican beverage, *pulque*, which has about the same alcoholic strength as beer. The ethnologist can, by gaining their confidence, get much interesting information from these very peaceable Indians.

I found at Salton and Indio, at this time, asthmatics, rheumatics and consumptives, all of whom reported wonderful recoveries. Some of these stories I accepted *cum grano salis*, which phrase is, by the way, especially applicable to the salt fields. These asthmatics and consumptives claim that the farther they get below sea-level, and the dryer the atmosphere, the easier they breathe. The rheumatics claim that the heat and dryness improves the circulation, and thus relieves them.

My stay was not long enough to make any trustworthy observations, but it occurred to me that, aside from dryness—mean annual relative humidity certainly not over twenty-five—and equability, there was considerable atmospheric pressure at a point three hundred and fifty feet below sea level, and that we had here moderately compressed air on a large scale. In a recent paper on the use of the pneumatic cabinet, the author, from many cases in practice, shows that compressed air relieves asthmatics and cases of phthisis. He says the compressed air will gradually force its way into every part of the lung, in order that the pressure may be the same on the inside as on the out. While the proportion of oxygen is of course not increased, yet there is an increased quantity in a given space, and we really have the oxygen treatment here on an extensive scale.

The physician may say that at from two hundred to three hundred and sixty feet below sea-level the pressure would not be as much as in the cabinet. That is true, but the patient goes into the cabinet for, say half an hour, three or four times a week, while if he is at a point like Salton he is breathing this moderately compressed air all the time, day and night. This is simply on the principle of the pneumatic chamber of Tabarie, the first one ever employed. This is the method recommended by Dr. A. H. Smith.* He refers to the therapeutic value of the increased amount of oxygen inhaled. He says compressed air is useful in catarrh of the mucous membrane, in acute and subacute inflammation of the respiratory mucous membrane, in restoring the permeability of air tubes occluded by exudation or otherwise, in asthma, in pulmonary hemorrhage, in pleuritic effusion, in simple anæmia, in inveterate cases of psoriasis and ichthyosis, and in the various forms and stages of phthisis. He does not recommend it in pulmonary emphysema. Dr. Smith says compressed air should be used promptly and perseveringly on the earliest recognizable signs of apical catarrh in those predisposed to chest disease. He also especially recommends it as an alterative.

Of course my deductions are all tentative, but I hope by calling attention to this unique region to gain the assistance of intelligent observers.

If a phthisical or asthmatic patient of considerable vigor intends coming to Southern California his physician might be justified (if the inflow from the Colorado does not materially effect the conditions as they were at my visit) in suggesting that—except during the summer months—he stop in Indio, and from there test the climate of this basin. If not suited or benefited, it is but two hours' ride by rail to Beaumont, a delightful resort, with excel-

*Smith, Andrew H.: The Physiological, Pathological and Therapeutic Effects of Compressed Air. Detroit: Geo. S. Davis, 1886.

lent accommodations, two thousand five hundred feet above sea-level; but two hours more to the pine forests in the San Jacinto mountains, from six thousand to ten thousand feet above sea-level, or to Riverside, Monrovia, Pasadena, Pomona or Whittier, all about one thousand feet above the sea; or to Los Angeles, three hundred and fifty feet above sea-level;* or—to Santa Monica, Long Beach, Santa Barbara, or San Diego, directly to the coast, and but nine hours' ride by rail and boat to Catalina Island, twenty-five miles out at sea, where a typical ocean atmosphere can be enjoyed. Thus an error in location can be quickly corrected.

To return to the term California climate: Here are innumerable friends writing from Monterey, Santa Barbara, Santa Monica, Long Beach and San Diego, all at sea-level, with an equable, humid atmosphere—delightful places to live forever. These writers think they really describe "California's climate." They talk of charming summers, spring-like winters, summer-like springs and June-like autumns; but San Francisco, Oakland, San Rafael, San Jose and Los Angeles will never consent that these places really have the "California climate." No; the writer from Los Angeles, three hundred feet above sea-level, Pasadena, Riverside and Nordhoff, all about one thousand feet above the sea, will describe what he believes to be the genuine California climate. He will tell about the ocean breezes being modified and mollified by their passage over the hills and orange groves; he will point out the advantages to the invalid of beautiful flower gardens, where the rose, the heliotrope and the fuchsia blossom out doors every day in the year. He will show the benign influence of thousands of acres of beautiful groves of orange, lemon, lime, fig, apricot, nectarine and pomegranate trees.

He will prove that half the robust-looking residents to be seen came to California with but one lung; but what right have these climate authorities to claim that they describe California's climate? Evidently, no right at all. San Francisco contains one-fourth of the population of California and has a climate peculiarly its own. A climate, in fact, that no other section has evinced any disposition to claim; even Oakland—just across the bay—very justly points to her freedom from raw breezes when compared with the Pacific Coast metropolis. Yet there is something decidedly invigorating in San Francisco's climate. It is a climate that grows on a person. Each trip the visitor makes leads him to like it better, but yet none of us will acknowledge that it is "California's climate." Not at all. Neither will we allow the marvelous climate of Lake Tahoe or the Yosemite to aggrandize that name.

Another climate that is being greatly lauded and much sought after is the insular climate. Catalina Island, twenty-five miles out at sea—forty miles from Los Angeles—has a climate that is the invalid's delight the year round. Here is an ocean climate without the discomforts of an ocean voyage. Here is an island many miles long, surrounded with remarkably transparent water, in the depths of which can be seen almost every inhabitant of the sea. On the shores of this island are innumerable droves of sea lions, while on the mountains that bisect the land the interpid hunter, rifle in hand, makes the wild goat bite the dust. The higher altitudes of California are but little known; yet here we find localities which compare in beauty and benefits to be gained to many of the famous European mountain resorts.

August 26, 1888, in company with a

* OTHER PLACES BELOW SEA-LEVEL.—Sink of the Amorgosa (Arroyo del Muerto), in Eastern California, two hundred and twenty-five feet below sea-level; the Caspian Sea, eighty-five feet below sea-level. Lake Assal, east of Abyssinia in the Afar country, eight miles long and four miles wide, is about seven hundred and sixty feet below sea-level. Its shores are covered with a crust of salt about a foot thick. This salt is a source of revenue to the Afars, as they carry it by caravans to Abyssina, where they find a ready market. There are several other depressions about six hundred feet below sea-level in this vicinity. The noted oasis, Siwah, in the Libian desert, three hundred miles west of Cairo, is one hundred and twenty feet below sea-level. Here are beautiful date-palm groves, and here also the apricot, the olive, the pomegranate and the vine are extensively cultivated. In this same desert is the oasis Araj, two hundred and sixty-six feet below sea-level. There are also numerous other depressions in the desert portion of Algeria and at various points on the Sahara desert.

friend, I left Los Angeles for the San Jacinto Mountains to see something of our higher altitudes. Four hours' ride by rail took us to the town of San Jacinto, where we were met by a patient of mine whom I had considered to be at death's door from phthisis. He remained quite close to the coast for a year, but lost ground, and suddenly determined to go to San Jacinto, where he "took up" a piece of government land. There was a steady improvement almost from the first. He has this season worked in the hayfield. While he is by no means a well man, yet the change for the better has been wonderful. San Jacinto has an altitude of about fourteen hundred feet. It is too warm for comfort in the summer, yet numerous consumptives claim they gain most during the hot season. Here we hired two horses and a buggy for $3.50 per day, and drove ten miles to the east, to what is called "the foot of the grade," where we stayed over night. The accommodations would have been fairly good but for the fact that the beds were all engaged. The consequence was, we had to sleep on a straw-pile in the barn, but the food was good, and, like the straw, was clean.

At 5 o'clock A. M. the next day we started up the grade. The rise is said to be about thirty-three feet in a hundred. A six-mule team has all it can do to haul eight hundred pounds up this steep road. The grade is two and a half miles long, and it usually takes at least three hours for a mule team to reach the top. It seemed to be the business of every person we met to try to frighten us, and we came near not attempting to drive up, but finally did try, and our little team pulled us up in just an hour. We gave them a rest about every twenty yards. Once in a while, when we dared to take our eyes from our horses, we would glance back at the magnificent landscape below us.

When we arrived at the top of the grade we found ourselves at an altitude of five thousand two hundred feet, and in the edge of a beautiful forest of towering pine and fir. For four and a half miles we drove over a charming road aligned by the refreshing green trees, enswarded by grasses, bushes, and many varieties of flowers—the rose and wild fuchsia predominating. Our horses slaked their parched throats and cooled their dry and heated feet in a musical mountain stream. The bluebird, the mockingbird and the quail were omnipresent, while the road-runner, with his long tail, marched along majestically before us, and the gray squirrel ran into his hole near the top of the tree. The sun rose as we drove, and we felt that we were indeed in the heights. The cool, invigorating atmosphere, brought to us through the pine boughs by a gentle breeze, fanned our foreheads and filled our lungs.

A few cabins picturesquely located indicated that our morning drive was ended. It was 7:30 o'clock when we sat down with excellent appetites to a rural breakfast of oatmeal mush, bread, milk, ham, butter and coffee, all of the best quality, in a primitive hotel.

Here we passed a delightful, dreamy day. The place is called Strawberry Valley. About two hundred persons were living here in tents and cabins, but they all leave by the middle of October. Then the snows begin. Consumptives and asthmatics are here in considerable numbers, and when the snows fall they hasten to the valley, three thousand five hundred feet lower. We made arrangements to go to the peak of Mt. San Jacinto, eleven thousand one hundred feet high, accompanied by Warner, the guide. Bright and early we were up the following morning, and soon had our horses packed for going up the trail, but alas for the propositions of man! Our horses began to buck and run around in a circle, and soon our well arranged packs were flying in all directions. Strange to say, this discouraging episode evoked expressions of unbounded mirth from all of the campers, who had gathered to see our brilliant cavalcade depart on its adventurous mission. I very much feared that such convulsive laughter would cause a hemorrhage

from the lungs of some of the valetudinarians who stood gaping on. How sad that would have been! We saw that our mistake was in not asking to have saddle-horses hitched to the buggy at San Jacinto. I would advise persons making this trip to insist on having saddle-horses, and have saddles in the buggy to use when Strawberry Valley is reached.

We soon secured another horse and a burro, and were fairly started by 8 o'clock. It is fifteen miles from Strawberry Valley to the peak. The first three miles is through rolling pine forests by a mountain stream. Then we began to climb, and for an hour we were going upward until we reached the Tauqwitz Valley, seven thousand five hundred feet high. Here again were thousands and thousands of acres of pine forests, and rich land well watered by never-failing mountain springs. In the center of this valley there is a peat bog. The horses passed readily through it, but the burro on which, to my regret, I was mounted, absolutely refused to take a step in the yielding, marshy, grass-covered bog. As I sat there whipping, coaxing and hallooing all to no purpose, I might well have been dubbed, like Don Quixote de la Mancha, the Knight of the Sorrowful Figure. By going a circuitous route I avoided the swamp, and we were soon climbing higher and higher. We went until we passed over a ridge and into another magnificent combination of forest and grassy plain called Tamarack Valley. Here we were nine thousand feet above the level of the sea. As we passed through a beautiful meadow where the foot of man had rarely trod, a deer ran before us and was soon hidden in the timber. Again, after about four miles ride, we began to climb. As we crossed the last mountain stream at about 5 P. M. we filled our canteens and watered our horses. At 6 P. M. we reached a level plateau ten thousand three hundred feet above the level of the sea, and only eight hundred feet below the peak. Here we were to spend the night. Soon we noticed the effect of the rarefied air. As I assisted in getting logs together for a fire, I found that walking ten yards exhausted me, and gave me the sensation of having climbed rapidly two or three flights of stairs. My heart beat at the rate of one hundred and eight per minute. Our guide was an intelligent young law student from Frankfort, Indiana. Over two years ago he began having hemorrhages of the lungs, and a year ago last April, while unable to sit up, was brought by a brave sister to Southern California. Tenderly and anxiously she cared for him in that long and tedious journey toward a forlorn hope. He improved from the time they reached California, and they soon came camping to Strawberry Valley, where he gained rapidly. In the autumn they went down to the town of San Jacinto, where the young man was able to clerk in the bank. When May came they again came to Strawberry Valley, and the brave and independent young sister rented the hotel, which she now manages in such a successful manner, while the young man acts as guide for parties wishing to kill game or explore the mountains. Strange to say, his pulse was only sixty per minute. He did not seem nearly as much distressed as my friend and I. Our evening meal was soon prepared, and never were fried bacon, potatoes and good bread, butter and tea more enjoyed. We unrolled our blankets and lay down under an immense pine tree. The novelty of the situation and the peculiar atmosphere prevented us from sleeping very soundly, and during the night we would from time to time be startled from our slumbers, but the intense stillness and the sight of the Pleiades that watched directly over our improvised bed would reassure us, and we would soon be dreaming of bears, deer, mountains and burros.

At four o'clock in the morning we were up. After feeding our horses and eating a sandwich we started up the last peak. We reached the very top in time to witness the sun rise in his splendor from beyond the Colorado des-

ert that lay spead out below us in its stupendous barrenness. What is that dark, twisting object, about the size and apparently traveling at about the gait of a snail? It comes nearer, and we see that it is a freight train on the Southern Pacific Railroad near Indio. The guide starts a boulder over the eastern slope of the mountain, and we hear it bounding through the awful chasms below. From this peak the ocean can be plainly seen. But space will not permit me attempting a description of what we saw from this wondrous height. On the topmost rock is a fruit-jar, with a cover carefully fitted with rubber, in which every visitor is expected to leave his card, with address and date of visit. The name of Dr. McLean of Riverside alone represented the medical profession, and I proudly put in mine as the second in the list.

Our trip back to Strawberry Valley was enlivened by a mountain thunder and hail storm, but the fir trees were like umbrellas, and protected us.

This trip again revealed to me the wonderful variety of the Southern California climate. If an altitude of fourteen hundred feet is needed it is to be found at the town and vicinity of San Jacinto, while at Strawberry Valley there is an atmosphere redolent with the fragrance of the pine forests, and an altitude of fifty-two hundred feet. At Tauqwitz Valley are all these beautiful surroundings and an altitude of seventy-five hundred feet, and at Tamarack Valley we have again the running streams, the beautiful meadows, great trees and an altitude of nine thousand feet.

Aside from the value of these elevated valleys as summer resorts, I believe they will become even more sought after as winter resorts.

The Alpine winter cure of pulmonary diseases is very popular in Great Britain and on the Continent. Thousands of consumptives flock to the Davos-Platz and Maloja Plateau in the Swiss Alps every winter. Immense and well-arranged hotels have been constructed by rich companies, and wonderful results have been recorded. The following are the altitudes of the chief resorts:

*SWISS ALPS.		†SOUTHERN CALIFORNIA MTS.	
Maloja,	6,000 ft.	Strawberry Valley,	5,200 ft.
Wiesen,	4,771 ft.	Tauqwitz Valley,	7,500 ft.
Davos,	5,105 ft.	Tamarack Valley,	9,000 ft.
Andermatt,	4,738 ft.	Wilson's Peak,	5,600 ft.

From the illustrations I have seen of these Alpine resorts, I judge they are naturally barren plateaus, and have not the wealth of beautiful pine forests that the Southern California valleys I have so meagerly described contain. The advantages of the pine forests are: First, giving a medicated air for constant inhalation; second, adding beauty and picturesqueness to the scenery; third, protecting the valleys from winds. An average of about three feet of snow covers these valleys in winter. In another year they will be much more accessible, as an excellent road is now in course of construction, and I trust that soon capitalists will unite, as in Switzerland, and provide suitable winter accommodations for invalids.

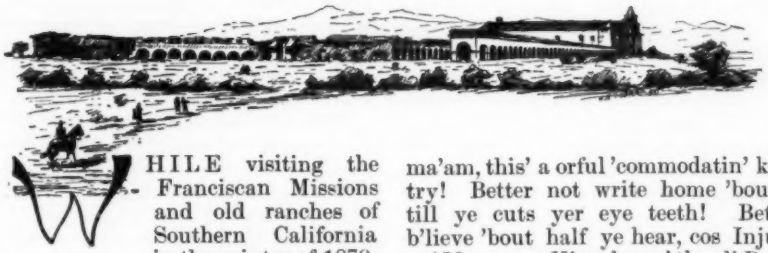
An admirable trail has recently been built from Pasadena to the summit of Wilson's Peak, in the Sierra Madre, and a hotel established, so that the traveler can make the ascent to an altitude of six thousand feet by slow degrees, and find nearly all the comforts of the lowland.

Is the reader of this paper in need of eternal sunshine, everlasting flower gardens, never-fading verdure? He can find them all in California. Does he want rare atmosphere, compressed atmosphere or sea-level atmosphere? He can find them all here. Does he want humid atmosphere or a dessicated atmosphere? He can find them both here. Does he want a climate where the ground is covered with snow the year round, or does he want a climate where the snow never falls? Either can be had in California. "California's climate" can never be described, but much is yet to be written of "The Climates of California."

*Alpine Winter in Its Medical Aspects. By A. Tucker Wise, M. D. London: J. & A. Churchill, 1886.
†Approximate.

THE BLESSED CORA OF SAN LUIS REY.

By Jeanne C. Carr.



WHILE visiting the Franciscan Missions and old ranches of Southern California in the winter of 1870, I learned that *Cora* is the generic name for an Indian basket; whether applied to one of the richly decorated head coverings treasured as heirlooms in the families of the natives, or to the various and indispensable vessels of basketry in domestic use. And it was in a journey by stage from Los Angeles to San Diego, that I found in a family of Luiseno Indians the oldest basket-maker and the most precious specimen of their handiwork that I have ever seen.

After leaving Santa Ana I was the only passenger, and, with a long night's ride in prospect, I gladly exchanged my inside seat for one on the box, the driver having been recommended as trustworthy and attentive. He soon opened a conversation, as if anticipating my questions.

"Yis, *ma'am;* you bet this ere's a big ranch; 'bout's big, guess's the State o' Varmount. I seen Varmount on yer trunk. This ranch uster begin to the North Pole, 'fore they divided it 'mongst the heirs; an it run beyant the South Pole sev'ral degrees. Don't caount anythin' smaller'n a league here. An' I reckon they'd a made the ranch bigger, ef there'd been *more poles!*"

After a long pause a belated squirrel glided across the road, and he resumed:

"No; they aint a lyin' when th' tells ye that rats lives in trees an' squirrels in th' graound! Truth is, ma'am, this' a orful 'commodatin' kentry! Better not write home 'bout it till ye cuts yer eye teeth! Better b'lieve 'bout half ye hear, cos Injuns an' Mormons, K'nacks an' the ol' Dons, Jews *an'* Chinamen jest runs races a-lyin'! Dunno which beats." And he laughed immoderately, as if this peculiarity had struck him for the first time.

By and by he broke out again. "Yis, ma'am; Californy's the place to settle deaun in! Ef ye aint married ye needn't lose no more time; n' ef ye be, it's the cheapes' place on the footstool to raise a fambly. Wimmen out here don't think nothin' o' twenty children; some goes ez high as thirty an' stops caountin'. Natyves ca'ant count more'n that."

"And have you as many?" I queried.

"Na'aw, I'm a bachilter! I went back ter the States las' winter to try m' luck, an' it didn't pan aout ez I expected."

"What was the trouble?" I asked.

"Wall, ma'am, the gal I useter go to skule with was thar a-waitin'; but she's a perfesser, an' I haint experenced religion."

"Was that all? She might have converted *you*," I suggested.

Disdaining to notice this, he continued:

"You see, ma'am, in them old States the young men don't settle; they kinder *sags down!* Ev'ry thin's so big here, t'wen ye gits there, your stories sounds like lies to yourself w'en yer a-tellin' 'em.

"Wall, I went back, as I said afore, an' ev'ry durned word I told 'em was

true as preachin'. They tuk it all in, 'til one night, when some of the neighbors wuz a-settin' raound the fire, an' I told 'em how I found a taller mine—an' then they sorter lost confidence in me."

"A tallow mine!" I exclaimed. "I have often heard of soap rocks, but never of a tallow mine."

"Wall, I hev, an' found one within a mile of San Luis Rey."

Here came a degression in favor of the horses, after which my companion resumed in explanation of his discovery:

"Ye see, ma'am, what them old padders did'nt know 'bout findin' work for their subjicks and pervidin' for the saints 'n' angels, not to say thereselves wa'n wuth knowin'. They carried on all kinds o' bizness. Meat was plenty; keepin' an' vittles was to be had at all the missions an' ranches, too, *jes' by settin' round!* The pastures an' hills was alive with horses an' cattle; an' hides an' taller was their coin. They cured an' stacked the hides, dug holes in stiff ground an' run the taller into 'em; it kep' sweet till a ship laid up to Capistrano, *then that taller turned into gold!* They could load up a big ship in a single day, they had so many Indians to help."

"I think I have read something of that miracle in Dana's book," I said, "but I should like to hear more about the wonderful mine."

"Don't know Dany; dessay he wa'nt wuth his keep! One o' them ducks allus hangin' round the *senoritas*, mebbe. They aint all dead yet.

"But *my mine!* Jes' a lot o' thet holy taller, lost'n fergot nobuddy knows how many years. I'd tell ye the hull story, 'ef there war'nt sech a sight o' lying 'bout Californy nowadays," he added, in a more serious tone.

"After one has traveled from Siskiyou to San Diego, nothing that can be said about California seems improbable. Every new country has its unwritten 'Nights' Entertainments,' I suppose."

"Guess thet's *so!* Wall, then, one night I went up into the grass beyant the mission to stake out my hosses, an' when I druv the fust stake it went way deawn, like t'was in soft mud. I jes' yanked it up; haf o'nt was kivered with grease! The evening was cool, but the day had ben brilin', *an' now mebbe ye kin guess how I foun' my taller mine.* 'T was a leetle mouldy on top, but the heft on't waz hard—a reg'lar bonanzy fer a stage driver."

Soon a delightful sea breeze reached us, laden with odors of aromatic plants, and we were nearing San Juan Capistrano Mission, where the stage stopped for meals and to change horses. The tuning of violins and sound of many voices indicated a festive gathering of some importance at the inn, and lest at the hour of midnight live Indians should prove less agreeable than dead ones, I chose to wait among the ruins where so many perished in the earthquake of 1812. During the previous week I had visited the wreck of Mission San Jose, made by the upheaval of 1869, where the venerable Salvador Vallejo was my guide.

The deserted ruins of San Juan Capistrano—the latest and costliest of the missions! Its broken olive mill and crumbling dove-cote and the spacious weed-grown courts and corridors were pathetic witnesses to the grandeur of the plans and purposes of the founders, and also of the rapidity with which nature effaces the noblest works of human hands.

All too soon for the permanence of these impressions, the stage driver's whistle recalled me to my seat. Thereafter several blood-curdling narratives of pioneer experience kept me wakeful, and our way lay along the beach for several miles, where multitudes of sea lions rolled and tumbled in the surf, filling the air with their strange cries, and when, leaving the shore we rose upon the moonlit hills, dark masses of wild cattle sprang to their feet and ran ahead of the stage for long distances, until their leader turned aside to breathe and rest.

When their serried ranks were broken they suddenly disappeared, as if the earth had swallowed them up. In what

seemed to me infinite spaces of sea and land this display of abounding and joyous animal life could not be witnessed without emotions of wonder and delight.

Rain had already fallen in the south, and the morning light disclosed the beginning of that marvelous transformation from dust to flowers, which is so enchanting when seen for the first time. Wild ducks started up from the *lagunas*, and immense flocks of sheep were already feeding on the hills. From afar we heard the sound of bells, and soon caught a distant view of the royal mission, surrounded with its courts and cloisters, crowning a perfect landscape. Emerald waves of grass seemed flowing to it, and fields of young grain stretched away into the distance. As we passed an adobe house near the road, the hymn of the sunrise reached us with its sweet invitation. Innumerable larks were also astir, and pouring out melodious responses to the bells.

And now from a clump of venerable pepper trees a smoke curled upward, and one approached a long low building which served as a wayside inn, a postoffice and store. A dilapidated water basin of stone stood before it in a round patch of neglected grass; not an attractive place, surely, to a hungry and weary traveler. Suddenly the horses were lashed into a run, and we swung twice around the circle, stopping so suddenly as almost to throw me from my seat. Within the inn, to my surprise, a bath was proffered, and a breakfast quickly served fit to satisfy the most fastidious appetite. Excellent coffee, a generous pitcher of cream, *frijoles* and *tortillas*, broiled chickens, rolls and fruit, made us loath to leave so delectable a feeding place.

Giving voice to my satisfaction I was told that the cook was a young Indian girl whose mother and grandmother had served the *padres* in that capacity, in the palmy days of the mission.

I begged to be introduced to her, and with a patronizing little speech in my mind and a bright silver piece in my hand, followed my host into the kitchen, and thus I found her, my incomparable Conchita.

She was making more *tortillas* for a later breakfast, an employment which displayed her superb arms and figure most perfectly. The single massive braid of her black hair fell nearly to her feet when she rose to greet me, and her large soft eyes lit up with pleasure when the landlord told her of my wish to remain for a few days in order to make a leisurely study of the mission and to visit Pala and Temecula, its former dependencies. My intended speech and offering were as much out of place as they would have been in the court of St. James.

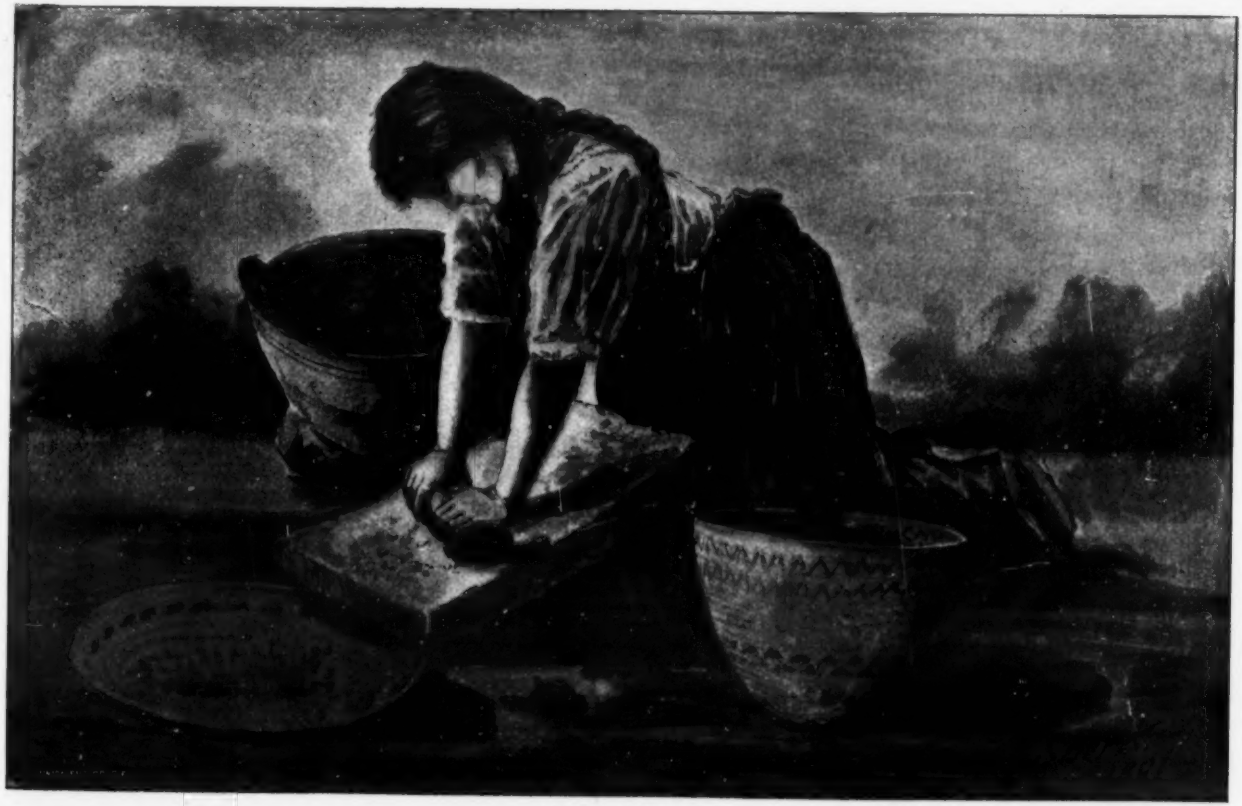
"You have the keys, Conchita," said the landlord, addressing her, "and may show the lady the parlor bedroom; at present we have no other." Then turning to me he briefly explained that the landlady being absent on an errand of mercy, Conchita was both cook and housekeeper. "My wife has taught her to read and write in Spanish; the rest of her education she has picked up, no one knows how. She sells goods for me to Indians, Spaniards and Yankees, and you will be able to understand her English, also."

Blushing at this introduction Conchita led the way through a darkened parlor, with a florid carpet and furnishing, to a little room which seemed filled to bursting with an enormous curtained bed. Excepting a small looking-glass upon the wall and some wooden pegs, there was no furniture of any kind. Its single low window opened upon a veranda in the rear.

Already I heard the rumble of the stage; there was only a moment for decision. "I will stay," I said, "if you will share this room with me. Otherwise, I think I must go on to San Diego, and stop here on my return."

"Stay," Conchita answered; "the landlady will come soon, for a baby is born to Pilar already. The mistress is good; she will make pleasant a place. We call her *Madrecita*."

Not without misgivings, I decided to remain until my interest in the fascinating story of mission life should



The Tortilla-Maker.

be satisfied. I relinquished my ticket and bade the jocose stage driver farewell. As the vehicle disappeared the landlord observed, dryly: "Bill Rumsey's a right peart feller, an' a fust-class driver, *but he's the biggest liar on the line.*"

I blushed with vexation, remembering the free entertainment Bill had doubtless enjoyed in so verdant a listener as myself, and mildly retorted:

"He's a Yankee, though, and so am I. It seems pleasant to meet a countryman so far from home." The landlord smiled. "He's a'most anything, 'cordin' to circumstances. His parents is greasers; I've seen 'em. But he's lived mostly with some folks from the Border States."

I checked the impulse to inquire if Rumsey had never found a tallow mine; never had the hairbreadth escapes which it gave me a creepy feeling to remember. I resolved not only to be deaf, but to be dumb forever more respecting the marvels of the Golden State. It comforted me to look toward the mission; to know that it was not a mirage, and there I spent the morning quite alone.

Not yet, however, in the church, or among the surrounding courts and cloisters, for, as I passed it to obtain a view of the massive and well-preserved facade, I saw on the opposite side of the road a broken adobe wall, with an imposing gateway leading to the mission garden.

Passing through this, a flight of twenty or more steps led down to a spring, where I found an old Indian woman washing clothes under a date palm tree—Syria in California. It was useless to question her, so, postponing my search for information, I proceeded to explore the garden as far as it was possible to walk among the cactus growths which overrun this once beautiful retreat.

It was a perfect wilderness of pear, olive and pomegranate trees, originally enclosed by a fence of the agave, or century plant, whose dead blossom stalks, some still green, others silvered by age, now rose like sentinels on every side. At eventide this must have been a lovely and restful seclusion for the fathers, whose days were passed in directing the labors of three thousand neophytes.

Returning to the inn for the noonday meal, I found that the hostess had returned, bringing with her two Indian girls, who wished to trade their fine needle-work for necessary clothing and supplies.

No Irish lace that I had ever seen exceeded this in delicacy, and I took the soft brown hands of the makers in my own, in an ecstacy of surprise and admiration.

The spiders of Italy are made to spin their webs in frames, that artists may paint portraits on gossamer to delight the curious; and I would gladly find words delicate enough to portray Conchita's animated face as she held up the lovely work for inspection.

When dinner was over I made a serious proposal to the landlady for a loan of Conchita for a week or a month, in order that she might accompany me on my visit to Pala, Santa Isabel and other remote Indian villages, and to all the southern missions. Taken by surprise, she replied at once that nothing could induce her to part with the girl, but as long as I remained at San Luis I was welcome to her services. The Indians, Maria and Serafina, would take her place in the kitchen; the house and store she could manage herself.

Conchita was delighted with this arrangement, and after *siesta* we wended our way to the church, the *alcalde*, with his huge iron key, accompanying us. He was old and bent, but his eye was bright, and he had been the only cicerone since the abandonment of the mission as a residence. He seemed to have quite outlived his personal name.

I was fresh from reading all the descriptions of these places to be found in the libraries of San Francisco, and a friend had kindly lent me a copy of Father Palou's narrative, in the Spanish language, of the founding of the missions. With these precious volumes I felt that I might live in the

padres' times, take part in their occupations, and, through sympathy, enter into the spirit of their self-denying labors.

The graves of my kindred had not been made in heathen lands, to leave me indifferent to this earlier consecration.

Nothing in our land, unless it be the Mission of San Xavier del Bac in Arizona, exceeds San Luis Rey in the beauty of its site and proportions. It would seem that the most cherished memories of Old Spain had blossomed here into a more vigorous and healthful life, under the hands of a devoted priesthood.

The walled enclosure contained fifty-six acres, six of these being covered by the sacred edifice, its arched colonnades and the cloisters, in which the fathers lived. The residential part of the establishment being thus secluded, and the discipline maintained effectual, they lived, surrounded by three thousand baptized savages, without a fear.

As we entered the building Alcalde and Conchita dipped their fingers in a consecrated vessel of holy water, and, dropping upon their knees, reverently made the sign of the cross, and as reverently, if not with an equal right, through adoption into their church, I followed their example. All places where man has sought the Heavenly Father have sacredness for me.

Some rude benches stood before the pulpit, otherwise the place was empty, and had not even a picture upon its walls. Beyond was the chapel and altar of St. Louis, the richly gilded statue of the saintly king still perfect in its place. The high, narrow windows had many small panes, and were curtained with cobwebs. The roof of a side chapel had fallen in, defacing a large picture of our Lord, with a golden nimbus, in the act of blessing a crowned and kneeling figure. Here the floor was slightly elevated, and covered with fine tiles. The main building was still in tolerable preservation.

"Conchita," I said, "I shall never be satisfied with looking at this place in this way. I must study it, piece by piece, by daylight and moonlight. Let us go up into the tower, where we can find seats, and with this small telescope we can see the lands where the great flocks and herds were pastured, where the rodeos were held, and the lines of the acequias. To-morrow, perhaps, we will walk around within the old walls and see where the great storehouses were, and where the Indian families lived."

Conchita was translating rapidly, with animated gestures, when she suddenly stopped, and the old man mumbled something which I could not understand.

As the old man searched the dim chambers of his memory and brought forth the relics of the past my imagination reproduced the busy scenes of mission building, when tiles were baking in the kilns, the adobes being molded and laid in long lines to dry in the sun, and scores of oxen dragging in stones for the cloisters and walls.

On yonder side of the square were women carding and spinning wool for blankets, or beating grain for bread, or in the moist gardens, hoeing the beans, squashes and melons.

He says they lived not in families here. At night the men were all locked up on one side of the square and the women on the opposite side, the children always with the mothers. They never ate together. And there were soldiers outside who kept watch all night, and when an Indian who had escaped was brought in he was cruelly whipped. The prison and the whipping place was over there on the south side.

"Were there many runaways?" I asked.

"At first, many. Afterward many were willing to be Christians, when they no longer feared what the sorceress would do.

"The fathers were always going about fearlessly among the wild tribes who had never seen a white man, and teaching them the religion. Only the Cahuillas would never be baptized."

Conchita's face grew serious, almost sad, as she translated the alcalde's words, revealing the darker aspects of the mission administration. Looking out upon the lovely landscape I called her attention to the shadows and their effect in enhancing the beauty of the scene. It was surprising to see how her mind took in the significance of this lesson, applying it whenever an excuse seemed needed for the blessed fathers, so idealized in her pure mind.

On one of these never-to-be-forgotten days, when strangers were in the church, I was writing in my notebook, and Conchita, waiting my pleasure, was seated on the rim of an old fountain outside the door. "Do you live here?" one of the party asked. "No," she replied, "we *live* no more in San Luis. A few of us remain near the graves of our people." As the strangers passed through the building they stopped a moment to express their wonder at the shameful negligence of the authorities, both ecclesiastic and secular, in not preventing the destruction of so interesting a place.

Scarcely had they left when Conchita came in, her cheeks burning and her eyes full of tears.

"They do not know dear lady, *you* do not know how terrible it was for us, the ruin of the missions and the loss of the worship! It was as if the sun had forgotten to rise and set when the people at morning and evening heard not the bells. My grandfather went on board the ship with Father Peyri and brought back his blessing, all he ever had for the work of thirty years! But he had rather have only that than steal from the mission herds and flocks and go into the mountains, as many Indians did, while Mr. Bidwell was here."

Again she asked: "If some American, not a Catholic, or a hater of Catholics, but one well known, who is fair, would tell all the truth to the President, do you not think he would restore the mission and the worship, and give the Indians their little farms and gardens again?"

"He could not, dear Conchita. A president only has his place and influence four years, and that is not long enough to tell the sad story to the millions who make him the father of the people. We can only try to have every one who can read understand the wrong and how to remedy it, and there are many engaged in this work already.

"Did you ever think, Conchita, that our parents give us names which do not fit us when we grow up, and all the time we are perhaps making the names we shall be known by hereafter?"

"Do you like my name?" she asked.

"Very much, because I shall never again listen to the murmur of the sea in a beautiful shell without thinking of you."

That day, as we were leaving the church, I asked where the sacred vessels were kept, and if those described by the earlier writers still belonged to the mission.

"We have been told that the splendid candlesticks, the finest in the country, are in San Francisco. And one of the bells, the very sweetest of all, went there also. Father Ubach brings the rich vestments and furniture for the altar from San Diego when he celebrates mass here, and Maria, the girl you saw at the house, always mends the laces for him."

In the afternoon of the next day, wishing for a diversion after these serious studies, I proposed that we should pay a visit to Conchita's family, the *madrecita* having promised me a ride in her wagon. They lived on the San Luis Rey River, some two miles distant. "Now, Concha," I said, "tell me their names and ages and I will buy a present for each of them at the store." Her delight was unbounded, and she at once began counting them off on her fingers. "My mother, Luisa; my grandmother, Gabriella; her mother, Antonina, and the old Indian woman," she added, hesitating over the last, a many-syllabled name.

"Is it possible!" I exclaimed, laughing heartily. "Three mothers! and is the old Indian woman still another?"

"No one knows who she is; she

speaks a different language. My grandfather found her drifting about in a curious boat near one of the islands when he was a young man. He thought she came from some place in the north; her otter skin robe was so finely trimmed, and the basket hat on her head was all covered with scarlet feathers. There were figures upon it of warriors and of the chiefs they had killed. These had not heads. And she had a silver cross hid in her hair of a shape different from our holy one. She always keeps it near her."

Later in the day we made our selections, Conchita showing much delicacy in respect to the cost of her purchases. Some small black shawls and packages of sweets for the old women, one of finer quality and a silk handkerchief for her mother, cheap hats and toys for the younger ones, was all she could be persuaded to accept. I did not forget to take along a package of cigaritas.

"My dear child," I said, drawn more and more strongly to her, by an irresistible attraction; *what can I do for you?*"

"Keep me near you," she instantly replied. "I would like to live with you always."

For a moment I could not answer. I was a New England woman, and on the dear old farm an untimely lamb was sometimes born in the winter and was cherished by the children, who kept it in a warm basket of wool by the hearthstone. With just such appealing eyes this innocent, virginal soul was looking into my own. I assured her that I would never lose sight of her; never cease to love and care for her. With this she seemed satisfied, and the expression of contentment and peace remained upon her face for many days.

Our ride led through the greenest pastures to the little rancheria, and was a welcome change from the intensity of interest excited by our studies of the mission. But in this nest of tule huts we had touched still more primitive conditions, and opened up a new series.

Old Antonina, baptized at the second mission established by Father Junipero, had gone south with him, and at San Gabriel her daughter was married. Her husband, Gregorio, was majordomo at that place when the orange trees were planted; palm trees and the vineyards. They were delighted to see one who had been there.

"Oh, indeed, those were wonderful days! Did the lady ever see the gardens, with fences of tuña all around, miles and miles of tuña, which a rabbit could not get through? And the shaded walks, with seats all along, and fountains playing everywhere? When they were taken from San Gabriel to build the mission at San Luis, they were so homesick they could not work, pining for the mountains. Did the lady ever see the Mountain of Bonita, and the holy one, covered with snow? There was not one like it in the south; it touched the sky."

I called Conchita to my side. "We must go, now, but I will come again before we go to Pala; perhaps this very week. But lest something should happen, can you take me to see the old Indian woman?"

She at once led the way past a corral, where sheep and lambs lay basking in the sun, to a hut, over which a shelter of brush and poles had lately been made. Beneath it sat a creature so old and wrinkled that one would sooner label her as a dried specimen of humanity than classify her among living beings. She could not see well by daylight, but, hearing Conchita's voice, reached out her small, wrinkled hands.

Conchita gave her a lighted cigarette, whereupon she smiled, nodded and proved herself a human being.

I watched her during the consumption of two other weeds, and then, taking care that no matches were left about, gave her the package, which she hid immediately in the bosom of her gown.

During our ride homeward Conchita told me strange stories of this singular being; how her memory came and went, and how she would sometimes secrete

herself for days where no one could find her.

Returning to the mother lodge, I inquired if the basket worn by the Indian woman when she was found, had been preserved. They assured me that it was in perfect preservation, but they had been unable to find it for more than a year. They were afraid it had been stolen, and they dared not speak about it, for it had been blessed by Father Peyri, and no one who had it would give it up. Luisa said she had prayed and prayed, but the saints paid no attention, and they were too poor to make costly offerings. She feared that the Blessed Cora was lost to them forever.

Stifling as best I could the shadow of a suspicion that this story had been made up for the occasion, we started for home, where a fresh surprise awaited us.

We had arrived in California when the Spanish influence was rapidly waning in the north, but the southern atmosphere was still filled with its customs and traditions. The Spanish and Mexican ladies deserved the lavish praise bestowed upon them by every traveler, and were bright examples to their Indian servants of gracious manners, and devotion to their domestic and religious duties. With many honorable exceptions the code of morals was lower in the masterful sex, and had no punishment for the betrayal of an Indian girl, a fact which accounts for the almost fabulous number of their children at the period of American occupation. Adopted daughters were not rare in the households of the generous senoras.

Returning to the inn, a new phase of southern life had presented itself, in a view of the *caballero* in all his glory, attired in the colors of the rainbow. Under a dove-colored sombrero, richly trimmed with silver lace, an embroidered handkerchief of gay silk protected his neck from the sun. His ruffled shirt was relieved against a blue velvet vest, with silver buttons, over which he wore a bright green velvet jacket, profusely trimmed with gold lace. Green velvet leggings reached down to the shoes, and were thickly sown with silver buttons on the outer seams. His saddle and bridle were in keeping with this fantastic but magnificent costume. In short, this handsome youth, from head to foot, and the spirited animal he rode, from its head to its tail, were unconscious expressions of the rich and joyous life of the land. He seemed hardly more responsible for his actions than a green and silver butterfly fluttering in the sunshine.

All this magnificence was lost upon Conchita, who went directly to our room, where I found her kneeling by the bed, with her rosary in her hands. Not knowing what to say, I was inspired to say nothing, and, softly closing the door, I sought the *madrecita* for an explanation.

"I have been expecting you," she said, "and if you had not come I should have sent for you. I would not let you have Conchita, except for a temporary companion, until I had seen more of you. She is truly a good and self-respecting girl, perfectly faithful to her family and her religion. I do not know how to get along without her, and yet I know this is no place for her. These Indians have no rights, the girls no protection, and the young ranchers and sons of the great proprietors think it no sin to trifle with them. Conchita has behaved with the greatest reserve in my house, and every one respects her. But we are likely to sell out at any time, and then I fear she would not be willing to leave San Luis Rey, and would sink into the dreadful poverty of the others. They say there is a charm in the possession of her family, and I hope to goodness it will keep her from the misfortunes of her race."

"But about this gay cavalier?" I inquired.

"He is no better and no worse than the others. Just for this emergency, suppose you and Conchita set off for Pala early in the morning. The young man will play cards till midnight, and is not an early riser."

"I will think of it," I said, oppressed by a sense of my new responsibility. I went softly back to my room, to find Conchita still where I left her, her face wet with tears.

"Oh, my dear girl, if you are not sick, come outside and see how beautiful the night is! Let us find Alcalde or his daughter and get the key, and have one little hour in the church, under this moonlight. We may go to Pala to-morrow, and never have another chance."

She accepted this proposal without eagerness, as if nothing, even the Madonna, could change the fate which overhung her race. Nevertheless, after a few moments of hesitation she covered her head with a black shawl, and we started for the adobe hut, where the old man was already fast asleep. He grumbled a little at being called into service at so unusual an hour, but was easily pacified with tobacco; while we took a last look at the court, so beautiful, even in its ruins, and the cell where Father Peyri wept and prayed for his deserted flock. I left Conchita there and went inside, seating myself upon one of the benches. An owl that was flying about, finally perched upon the statue of St. Louis; and at that moment I fancied I saw something in human shape creeping along the wall behind the altar. I rose up quickly, saying to myself: "This is all superstition, of course." But as the form became more defined, I saw that it was that of a small woman, who was holding up something in her hand. I could hear my own heart beat, and a little bird, which had built its nest under the roof, chirped and fluttered overhead.

As she drew nearer I heard the words "Cora, Cora," which for an instant I took to be a woman's name, and then I recognized the old Indian.

I had sense enough left to speak to her softly and take her gently by the arm, otherwise she would have run away, leaving the mystery forever unexplained.

During our visit to Conchita's family she had overheard the conversation about the loss of the Cora, which under the influence of her ancient superstitions she had hidden away in Father Zalvidea's grave. This was on the right side of the altar and covered with square tiles.

As she was in the habit of straying off, sometimes disappearing for days, nothing was thought of her absences, and with the ancient cunning of her race she had been able to do this work unobserved. The Cora had been carefully packed in a box of dry leaves. The consecrated earth which she had removed to make room for it she had hidden elsewhere in the ruins.

Conchita's interest in this strange occurrence was now so absorbing that, forgetting the annoyances of the day, she seemed another creature. She eloquently described to me the tender patience with which this woman had ministered to Father Zalvidea in his infirmity. She made the acorn porridge for him fresh every day, for he thought the long life of the oak tree was transmitted through the acorn meal, and believed that was the reason why some of the Indians live to such a great age.

Well provided and mounted we started on our journey to Pala at an early hour, and yielding to my suggestion the *cora* was worn by Conchita in Indian fashion, though partially concealed under the ample mantilla.

The many crossings of the San Luis Rey River were as many leaves in the poem of that delightful southern land. We lunched in one of the canyons, under a sycamore tree of magnificient proportions, leaving our gentle animals to stand in the cool stream or to feed upon the sweet wild grasses as they pleased. I said to Conchita, "There never was a better time for me to hear the story of the Blessed Cora, and I am going no further until it is told."

Conchita began, but oh, how tame the story will sound without the sweet voice and the glowing face with its background of leaves!

"It was made by the mother of Antonina, more than a hundred years ago, she thinks; she is a northern Indian,

and they had the finest baskets and patterns. I do not know if that is true; the rest is."

CONCHITA'S TALE.

"Father Peyri had been sent for in haste to go to Pala, where an Indian chief was dying. He had been sick, the good father, but taking with him a flask of wine and the viaticum and leaving an order for my grandparents to follow him, he reached the Pala mission in time to comfort the departing soul. When all was over he started to return. There was a very bad place in the road where torrents of the previous winter had washed out some large trees. When he reached this spot a large and fierce mountain lion sprung upon his horse and all three were struggling in confusion on the ground.

"The father tried in vain to regain his feet, only to find his body pierced with excruciating pain. He would have given his life to save the poor creature that had served him so faithfully, and he cried to God for Jesus' sake to spare the innocent beast. Like St. Francis, the dear father loved the animals. He called the sun his mother and the moon his sister."

"Oh," I interrupted, "St. Francis is my saint of saints."

"Senora, *there never was a saint more holy than Father Peyri!*

"My grandmother did not receive the father's order to follow him until a late hour, and then there was no horse or mule to ride, so she started on foot. She was wise from a young child, and could see things to which others were blind. Voices from the spirit land directed her steps and made her helpful to all. She walked so fast that she was out of breath and the drops of sweat fell from her face, but still she toiled on for twenty long miles, until by the roadside she found the good father lying prone upon the earth. She ran to him and threw herself with cries upon his body, for she thought he was dead. She kissed his hands, they were not cold, and then she held them within her own, praying to the Holy Virgin to save him. Faint as a sigh came from his pale lips the words, 'Agua! Agua!' and the poor creature sprang to her feet.

"There was not a manadero or a drop of water within reach; it was far below this, where the river crossed the road. But she did not hesitate. She pulled off her jacket of rabbit skin and put it under his head and ran down the trail as fast as she could. The road seemed to grow longer, and as she stopped a moment to recover her breath, she heard crunching sounds and stopped quite still; it was the lion and his mate devouring their yet warm victim.

"The thickets were very dense below her, but she kept on, more cautiously. Now she heard the drip of water from a little rivulet falling on the rocks near by, and reaching it, she fell down, exhausted.

"A short rest and a copious draught restored her strength, and filling her basket cap with water she retraced her steps, feeling in her soul an assurance that she would find the dear father yet alive. How carefully she put the precious cup to his lips, so that not a drop was spilled! And the water revived him so that he could speak and tell my grandmother where to find the wafers and wine.

"That is how it all happened that Father Peyri blessed the Indian basket, and that it is very precious to my family."

More than twenty years have passed since these happenings. I wonder if the sycamore tree has been cut down; if since the hills are stripped of their timber, the stream is quite dry in the early summer; if the basket is in some curio collection. But this I know, to my great sorrow: there is a cross of white marble in a certain Catholic cemetery inscribed only with the text, "Blessed are the pure in heart." It marks the grave of my Conchita.

A CALIFORNIA DEER HUNT.

By Theodore S. Van Dyke.

BRIGHT days were those when the breeze came fresh and fair from off the tumbling sea, tempering the sunshine that streamed upon the dreamy hills of summer in the southern part of California, and making a day among them at that time of the year when the deer are at their best a pleasure instead of toil. But scarcely less pleasant, though not so certain for success, were those winter days after abundant rains had washed the land and the sun fell with milder beam from a bluer sky.

For nearly a mile we had followed the trail of a large deer from where he had stopped feeding in the morning, to the top of a ridge, on the other side of which the land fell away to the distant sea in long, undulating lines of green and gray, red, brown and blue, all bathed in the soft light of the westering sun.

And what better place for a well-bred deer to doze away the mild hours of a midwinter day than the potrero into which we now looked down—one of the little mountain gardens, guarded on three sides by a ring of majestic live-oaks, and opening on its lower side toward the great watery plain that shimmered along the western horizon and then, falling away into a deep canyon with miles of winding timber in its bottom? And what better time for such a deer to rise from his long nap than just as the sinking sun was bridging with golden sheen the vast expanse of water on the west?

As I was about to remark to my companion that deer have a provoking habit of ignoring the fine places you find for them to spend the day in, and prefer to make their own selections, there was a sudden roar of wings from the shining green of a bush of heteromeles down in a little grassy flat in the potrero, and dozens of lines of whizzing, wheeling and squealing blue started out of it for as many different points of the compass. But the flock of quails thus disturbed flew to such a short distance and showed so little fear of the bush that it was evident their alarm was precautionary, rather than genuine. In a moment more there was a faint motion of the scarlet berries that hung in dense, shining clusters everywhere amid the glistening green of the spreading bush, followed by a light gleam of something smooth along its outer edge. Faint and short it was, but very much like the play of light that sometimes comes from the polished horns of a deer.

Soon there was a second glimmer, a trifle broader than before, but with a softer play of light, such as sometimes comes from glossy hair under the softened beams of the setting sun. And then the canopy of green above it stirred again with a movement, faint, indeed, but still much stronger than could be made by any bird among the branches, or the gentle breeze that was playing across the land from the peaceful sea far away below.

Suddenly, along the outer edge of the bush, where its nodding clusters of crimson seemed to merge into the golden glow of the violets that were beginning to light up the green carpet of the slope beyond, there was a slight glitter from something harder than hair, and this in a moment was followed by another, and that at once by another, and still another, until into full view came a pair of branching antlers. Behind them came slowly into sight a pair of broad, gray ears, and in front of the horns, framed in light gray, was a broad, black forehead, running down into a fine tapering nose of almost jet black. Then followed a neck thick and proudly erect as that of the war-horse of poetry, expanding into a

plump, thick-set body in dark, glossy gray.

All this as it appeared through a strong glass. The deer was not near enough for those who know the deceptive nature of a long shot at game, especially down hill and over an unknown distance, and I and my companion knew that the picture would be different through the sights of a hunting rifle, and with the sun shining full onto them. Still something must be done quickly, for the sun was fast flooding the deep canyon far below with rosy mist, through which the winding lines of sycamore, cottonwood, willow and alder that marked the watercourses at the bottoms of the ravines between the soaring hills were fading fast from sight, and the light green of the lilac, manzanita and other bushes that robed in dense chaparral thousands of acres of the hills below, was changing rapidly into blue.

Having completed his getting up from his midday nap our deer pricked up his ears, struck a majestic attitude and with an air of great wisdom surveyed the landscape around, then giving his stubby, little black tail a complacent wiggle, as if sure no danger lurked on land or sea, he bent down his head and began to nibble some of the lucern that was casting a yellow tinge over the grayish green of the chemisal. Then, suddenly, he turned about, and through the tall, gray stalks of the white sage, over which the trailing vetch was climbing in a chain of carmine, purple and green, he started off on a slow walk.

We had decided that, long as the distance was, it would be better to risk a shot at the game than to take the chances of approaching nearer. To approach the deer directly within range of his eyes would have been out of the question, and the making of a detour among the rocks and brush of the surrounding hills was even more uncertain, especially when the course he would take was not yet determined. In the mean while the haze that was flooding the valleys below was fast turning into a deeper shade of crimson, and the sinking sun would soon play too much in the sights of the rifle when pointed down hill toward it. We therefore decided to try a shot from where we were.

But to do this it was necessary to consult the deer's convenience. For anything like a certain shot at such a distance the target should be perfectly still, and standing still was exactly what the target would not do, for about the time I had gauged the distance and adjusted the sights for it, the deer moved behind the bright green curtain of a large sumach. Behind this he stood out of sight for a moment, but moving some of the branches in a way that showed he was nibbling some of the twigs from it, and then he moved slowly out and across a bit of open ground, carpeted with tall bunchgrass, and then under the dense canopy of a huge liveoak. Here he stood for a while in shade so deep that he would have made too indistinct a mark for even a much shorter distance. He scratched one ear with his hind foot, reached up and nibbled some of the leaves from the lower limbs on the outer edge, and then went on to the next tree, where he bent his nose to the ground, as if looking for acorns. All this was giving but little opportunity for a shot, and all the time he was going farther away. But a few hundred feet farther on, the lilac, manzanita and shrub liveoak formed a dense chaparral along the hillside, in which he would be lost to sight, and even on the more open ground the orange floss of the dodder, twining in such masses over the tall buckwheat and lucern, was almost enough in itself to hide the buck unless the sunlight played just right upon his coat.

After spending a few minutes under another tree and keeping us in great suspense, the deer started toward the point of a long ridge on one side. Soon nothing was in view but the glittering points of his horns rising and sinking among the brush as he walked along nipping a bunch of leaves here and there, and presently a larger mass of dark green chaparral closed over

him, leaving the world around us very lonely. Toward the coast we could see the wild geese in long, dark lines high in the sky, winging their clamorous way above the bright green plains, and through miles of air fell the weird, penetrating *g-r-r-r-o-o-o* of sandhill cranes circling in long crescent lines far in the zenith. From the basin below us the clear call of the quail ran along the hillsides, and we could see quails trotting here and there in dark blue lines among the openings or covering the greensward in dark bunches where they ran together. But still the world seemed lonesome without a sight of that buck, and the prospects of never seeing him again began to grow alarming.

The whippoorwill, a soft grey fluff of delicate feathers, was pitching in the air around us with soft, plaintive *mew, mew, mew*; the great islands of Santa Catalina and San Clemente were fast growing darker, while the broad stream of radiance that flowed landward from the horizon was rapidly brightening, and our only prospect for even another sight of the game was to reach at once that part of the ridge toward which it was moving.

We went as fast as the granite boulders that studded the ridge and the long outstretched red arms of the manzanita would permit, startling from the wild cherry the brown thrush and cutting short the tide of song he was pouring forth over what is here the opening of spring instead of the coming of winter, and sending the little blue hare of the hills scurrying with rapid foot and flickering white tail among the bunches of maidenhair or gold fern that were springing up between the rocks.

Before going far we looked over the ridge into the place where we had last seen our game. But there was little sign of life except the bluish line that through the deepening crimson of the air below marked the arrowy flight of the turtle dove, the twittering that came from the ruby throat of the linnet, or the joyous flow of life from the golden breast of the meadowlark. Despair was about to master us when my eye suddenly caught a bit of sheen that changed too quickly to be explained by any change in the position of the sun. Nor was it from the smooth leaves of the evergreen *yerba santa* nor from the showy wild gooseberry that was getting ready to blow its crimson trumpets in the spring, for in a moment it shone again, and the gleam thereof was broader and brighter than before, unmistakably from hair. And beside it from the perennial green of the shrub liveoak came surging up a dozen glittering points and the big ears and the fine dark nose were again pointed for a moment at the different points of the compass and then again disappeared from sight into where the acorns were still clinging on the lower branches. The game was nearer the point of the ridge than before and again we sped along. Before us the chaparral cock broke into reluctant flight and sailed across the next ravine with long, fanlike tail outspread; the ground robin checked his bubbling spring of self-satisfaction and fled silent to the thick cover of the ceanothus; the sparrow flew chirping from his nest among the springing poppies, and the wee little wren left his new house that he was building in the fragrant green wealth of the black sage, and soon we reached a point that afforded another good view into the potrero.

But not a beam of light was there from anything save the orange glow of the mimulus where its bright corolla hung out from among the chinks in the piles of granite; not a glitter from anything save the white, fleshy leaves of the cotyledon, the toughest of the stonecrop family, that was living in luxury upon the hardest and driest tables of granite. So we hastened along, for the hum of the bee was already dying out along the chaparral, and from the dome of heaven in long and graceful curves, the condor was winding down to earth to roost.

Suddenly I saw where the fern-like leaves and pink blossoms of the alfileria had just been bent to earth beneath a fine-pointed hoof, and before I could beckon to my comrade there was a heavy *bump, bump, bump, bump*, upon

the ground in the brush ahead of us. Each sprung at once into position, to look over the wealth of green by which we were surrounded, and I reached the top of a flat boulder just in time to see a whirl of gray some seventy yards ahead vanish in the green at the crack of my companion's rifle, and another close beside it, clear in a shining curve, the broad, scarlet top of a low photinia that filled the space between two boulders. Then, at an angle to its former course, the first gray rose again on high as another *bump* resounded from the ground, and as the mellow light of the sinking sun played full upon its side we saw, for a second, against the distant background of sky, the clear-cut outlines of a two-year-old buck. Bang! went both rifles almost at once and too hastily aimed. *W-h-e-e-e-o-o-o* went the lead, singing away on high as it glanced from the smooth surface of the granite boulders around the path of the deer, and the game descended into the chaparral with a heavy bump that indicated sound legs and a still healthy anatomy above them. As it disappeared the other one rose again on another tack, this time under the different play of light on its coat, dark and glossy as the curve of a porpoise tumbling through the waves, and just as it cleared the top of an ambitious young wild currant, *bang!* went my companion's rifle again, and the gray descended with a heavy crash of brush, instead of the clear *bump* we had heard before.

Little time was there for thought, for the rapid *click, click*, of our repeating rifles, as the empty shells flew hot and whizzing in curves above our heads from the speed of the ejectors, was not so quick as the surging again above the brush of the other deer. Up he came with all four feet grouped beneath, ready to strike the ground like springs of steel at his descent and throw him again aloft as lightly as a sunbeam glancing from a wave. *Bang!* with both rifles almost together, but as the beamy pelt sank into the brush there came back the firmest of thumps from the hard ground and up came the gray again before our quickest motions could work the rapid mechanism of our repeaters. There was something about the firmness of the *bump* that followed its descent this time into the brush that fell heavily on our hearts. But, just as our rifles were reloaded and ready, the shining fur, surmounted by small horns and large ears, pointed skyward, loomed up again more symmetrical than before in clear outline against the glistening side of a great boulder of smooth granite. From this the lead flew in hissing flakes around the deer, causing it to wheel like a flash and dart off almost at right angles to its former course, and at a pace more rapid than before. As a boulder parting from its anchorage of ages on some steep hillside in full headway bounds in whizzing curves through the brush as well as over it, so went this deer at first down the slope on the east. As my companion's rifle rang out he changed his course again with sudden whirl, and no longer with high and swinging bounds, but hugging the ground like a racer, as this bounding deer can do when he tries, he clove the densest green of the chaparral almost as easily as a cannon shot. Dark with speed the game passed the first two openings in the brush before either rifle was ready. In a second more it was lost behind the light green of a lilac and then glimmered for an instant in the opening between that and the brilliant red berries of a large heteromeles. It was a desperate chance, but the only one left, and dropping the line of the rifle sights into the blending colors of the heteromeles full eight feet ahead of the rushing line of fur I pulled the trigger.

Was it fancy, or was there in the crack of brush that followed something different from that made by a healthy deer as he merely touches it in swift career? A heavier crash of brush that soon followed gave the answer. We took the trail, and in a few yards the hoofprints showed signs of unsteadiness; in a few more they became wilder and more plunging, and in a few more we found our deer lying heels upward and head foremost in a bush.

But what of our buck? We had now as much game as any mortal should want. But we had come a long way for this hunt, the season was about over, and it would be months before we would have another hunt. So we thought we would at least take a look and see if the shooting had scared him, although in those days deer were so tame that they were not easily alarmed by shooting, especially when the conformation of the hills made it impossible for them to tell where the noise came from.

Looking over the ridge into the main basin where we had last seen our deer we saw nothing. Still we concluded to go down into it a little way, at least, to see what had become of the big buck. Scarcely two hundred yards had we gone, down a little swale, when a young setter dog I was training to point deer, and had so far kept close at my heel, suddenly stopped, and, tossing his nose high in air with inquisitive sniff of the evening breeze, began to look very wise. Some two hundred yards ahead were two or three acres of ground covered with a dense grove of liveoaks and other trees, where there was probably a spring and plenty of thick underbrush in which this buck in the years gone by had probably whiled away many a summer day.

As we neared the place the action of the dog showed plainly that the deer was there, but whether within or along the edge we could not tell. So we made a circuit of the surrounding slopes to see, and with the understanding that if he was not along the outer edges I should enter the timber from below, while my friend should watch for him on a point that commanded a view of the direction in which he was likely to run when I entered the cover.

A circuit of the slopes around showed nothing but a large, red-tailed hawk sitting in a sycamore among the timber, and a wildcat on the hillside that twitched his bobtail out of sight into the brush in a twinkling. Going around to the lower end of the timber I threaded my way among the tall spires of the arrow-grass and through fragrant ranks of wild celery that stood almost as bright as in the noon of summer. Water-cresses lined with green the little stream that gurgled through it, and the wild pea was unfolding its gaudy banners over the fallen log beside which the columbine and the tiger lily were drooping after their long period of bloom. A large flock of mountain pigeons, driven down by the snows in the higher ranges, burst with clapping wings from the liveoaks at my approach and circled away upward to where the sunlight shone upon the burnished lavender of their breasts; the white-barred owl, with his ape-like face, stared at me from the limb of the cottonwood, and the large ground-squirrel scampered away over the carpet of leaves beneath the liveoak, but no place ever looked less like containing a deer.

Just as I had about concluded that the buck was skulking in the dense cover—a trick this deer knows right well how to do—my friend's rifle echoed along the hills. I ran at once for the hillside, and reached it in time to see a ball of glossy gray fade into the brush at the second crack of my companion's rifle, and sent a bullet from my own in ahead of it and where I thought it would be by the time the ball arrived. A crack of brush followed the report and sent hope soaring high, but in a moment more the deer came bounding out of a little gulch upon the hillside as gracefully and easily us the wave surges from what but the moment before was the trough of the sea. Here he cleared with lofty bound a granite boulder, there he skipped gaily around the next one; now he turned with easy curve to leave some bush on one side, and then over the next he went as lightly as the shadow of a passing cloud.

Too far for a fair shot when we first saw him, his jumps were now so irregular and the distance increasing so fast that the prospects of hitting him were very slender, and our only hope was in speed of fire. So the rocks along his course were warmed with

lead that hissed and sang through the air above and beyond; yet he quickened not his pace. The larger hare fled in a flash of yellowish brown from his path, the raven, with guttural croak, wheeled away upward out of all danger to his glossy coat, and the buzzards slowly circling in to roost in the timber, sought other quarters at once. But our deer waltzed away up hill over the rocks and brush as gently as a beam of the rising sun plays from crest to crest of the chains of hills, until a dull click announced that the magazines of our rifles were empty. Then on he went from the shade in which our part of the scene was now wrapped into the sunlight along the upper slopes where the big rocks glistened and the chaparral was a brilliant green instead of darkly blue; yet his coat outshone it all, as the rosy light played upon it, and never seemed game so fair as when he reached the top of the ridge and, wheeling half round, turned his broad ears and great branching horns full upon us with inquiring gaze, while the sunlight glittered from every polished tine as he stood clear-cut against the mellowing blue of the eastern sky.

THE HISTORY OF CITRUS FRUITS.

By William A. Spalding.

THE erudite Mr. George Gallesio, author of "The State Council and Sub-Prefect of Savona," in his preface to a learned treatise on the citrus family, written sixty years ago, says:

"Of all the plants spread by Nature upon the surface of the globe, there are none more beautiful than those we know under the names of citron, lemon and orange trees, which botanists have included under the technical and generic name of Citrus. . . . In a word, these trees charm the eye, satisfy the smell, gratify the taste, serving both luxury and art, and presenting to astonished man a union of all delights."

The opinion of Mr. Gallesio has been shared by all civilized races since the days of the Crusade. The citrus family has a quaint and curious history. It is supposed to have originated in Southern Asia, and in that portion of the East Indies lying beyond the Ganges. In its primitive form the orange is believed to have been a bunch of pods attached at a common center on the end of a stem, each pod inclosing a small quantity of pulp and juice and several seeds. In a process of evolution, occupying nobody knows how many centuries, these pods gradually grew together, uniting at their edges and forming the complete spherical fruit. But the rudimentary divisions still remain, although the pericarp has disappeared from the inclosed surfaces and only a thin membrane remains. Sometimes we see an orange "sport" which shows a tendency to draw in the pericarp along meridianal lines, as though the fruit were attempting to divide itself into pods again; sometimes we see a "sport" in an elongated pod-like form; sometimes a protuberance from the blossom-end of the orange assumes such a shape. All these show the tendency of the fruit to revert to its original form—a bunch of pods.

When Mohammed extended his conquests into Asia he discovered citrus trees in their native habitat. Impressed with the beauty and fruitfulness of the trees, the Arabians disseminated them by carrying seeds to Arabia, Syria and Palestine. In their westward incursions they also introduced the trees in Africa, Spain and in some of the European islands. The Arabs invaded Sicily about the beginning of the ninth century and planted orange and lemon trees on that island. That the orange had at that time been transformed from its original apocarpous or pod-like form to a sphere is attested by Abdallatif, an Arabian writer of the twelfth century, who refers to the "round citron" (*otridg modawar*). He says it was brought from India subsequent to the year 300 of the Hegira (A. D. 922). It was first served in Oman, Arabia; from thence carried to Irok, Persia, and finally introduced in Syria, becoming very common in the houses of Tarsus and other frontier cities of Syria, at Antioch, upon the coasts of Syria, in Palestine and in Egypt.

Next came the Crusaders as disseminators of citrus trees. Entering Asia Minor as conquerors, they spread out as adventurers and traders through all parts of Asia. They were not slow to discover and appropriate such choice fruits as the orange and lemon. Sicilians, Genoise and Provencals transported to Palermo, St. Remo and Hyeres trees of the citrus family. Jacques de Vitry, a historian of the thirteenth century who accompanied the Crusaders to Palestine, thus quaintly describes the newly found fruits:

"Besides many trees cultivated in Italy, Genoa, France and other parts

of Europe, we find here (in Palestine) species peculiar to the country, and of which some are sterile and others bear fruit. Here are trees bearing very beautiful apples—the color of citron—upon which is distinctly seen the mark of a man's tooth. This has given them the common name of *pomme d'Adam* (Adam's apple); others produced sour fruit, of a disagreeable taste, which are called *limons*. Their juice is used for seasoning food, because it is cool, pricks the palate and provokes appetite. . . . There is a species of cedar called *cedre maritime*, whose plant is small but productive, giving very fine fruits as large as a man's head. Some call them citrons, or *pommes citrons*. These fruits are formed of a triple substance and have three different tastes. The first is warm, the second is temperate, the last is cold. Some say that this is the fruit of which God commanded in Leviticus: 'Take you the first day of the year the fruit of the finest tree.' We see in this country another species of citrine apples, borne by small trees, and of which the cool part is less of a disagreeable and acid taste; these the natives call *orenges*."

It was at this period that the orchards of Europe gained as accessions from the Orient the damson plum, the St. Catherine pear, the apricot and other valued fruits.

From Sicily the Roman States and the islands of the Archipelago first received their orange and lemon trees. Thus Sardinia, Corsica and Malta were first stocked with fruit trees which have ever since been of the utmost service to their people of those islands.

The lemon was first cultivated in Europe for the use made of its juice as seasoning for food and in confections, which became very popular in Europe on the introduction of sugar. Afterward both orange and lemon trees were grown largely in gardens for ornamental purposes. The monks planted them in the courts and grounds of their monasteries. An aged tree which stands in the court of the convent of St. Sabina, at Rome, is accredited to the planting of St. Dominick about the year 1200.

The æsthetic fancy spread to colder latitudes where citrus trees could not exist the year round in the open air, and this first led to the establishment of hot-houses. These, in France were called *orangeries*, and in the fourteenth century they were regarded as an almost indispensable adjunct to the gardens of princes and nobles. In the fifteenth century *orangeries* or hot-houses became more common and were much in vogue with people of the wealthier class, chiefly in countries where a covering of glass, without other artificial heat, was sufficient to protect the trees.

It remained for the eighteenth and nineteenth centuries to disseminate citrus trees to countries best adapted to their cultivation in the open air, to produce the fruit in quantities and introduce it to the world as an article of commerce. The age of romance made an æsthetic use of the trees; our more practical age has converted them into an agency of money-getting.

We now find citrus trees cultivated for profit in the following countries:

In the Riviera, South Coast of France, along the coast of the Mediterranean, over one hundred varieties are grown; not only are the oranges exported as fruit, but orange-flower water is distilled from the flowers, and both flowers and fruit enter largely into other manufactures. Consul Bradley reported in 1890 that one firm alone used 700,000 pounds of flowers for this purpose. Tons are can-dried green. Neroli, a popular perfume, is extracted from some varieties.

The orange is extensively grown in Spain, the favored localities being along the Mediterranean, in the provinces of Valencia, Andalusia and Barcelona. The islands of the Mediterranean have become famous for their citrus products, Corsica, Sardinia and Sicily being best known. The Italian oranges we receive come mainly from the districts of Carrara, Genoa, Naples and Verona.

Oranges come from various parts of the Levant; the Azores, 800 miles

west of Portugal; from Asia Minor, especially from Smyrna.

In Palestine the principal groves are at Jaffa, while some are found at Gaza and about Jerusalem. The fruit grown inland is inferior.

Smyrna is famous for its orange and lemon groves. In Beirut and vicinity varieties, sour, sweet, and mandarins occur. The best fruits are grown along the sea; few trees being found in the interior valleys. Haifa, Mersinia, Sidon, Tarsus, Tripoli and vicinity are all famous for their groves.

In Nagpur, India, several choice varieties of oranges are grown, none of which are familiar to us by name. Here there are two seasons for ripening fruit during the year. The finest fruit is obtained from flowers that open in June and July. This fruit is on the market from February to May. The other flowering takes place in February and March. This ripens from December to February. But the same trees cannot produce fruit in both seasons without great detriment to both fruit and trees.

In Philippine Islands, off the coast of China and India, five varieties of orange and four of lemons are found. They grow wild in the jungles and are cultivated to some extent, but the fruit is not of a character to invite exportation. Consul Webb, of Manilla, says: "I am quite sure there is not a native orange or lemon that would compare at all favorably with the ordinary products of Florida and California."

Australia is gradually becoming an important field for citrus fruits, especially in the colonies of New South Wales, Queensland and Victoria. The areas under crop and the produce are as follows:

Colony.	Year.	Gross Produce. Acres.	Dozen.
New South Wales..	1889	10,851	19,693,580
Queensland	1888	1,068	742,417
Victoria.....	1888	34	.....

Consul Griffin says:

"It is probable that when the returns for 1889 for Victoria are available they will show a very large increase, for since the inauguration of irrigation colonies there, large areas of orangeries have been planted at Mildura and elsewhere. The orange and lemon tree is also being planted on a large scale at the newly established irrigation colonies in South Australia."

Of Cape Colony, Africa, Consul Hollis says: "The time was, and not so long ago, when the orange crop of this colony meant a grand revenue to the farmer. With the advent of the Australian bug, Vedolia, all this is changed, and in place of trees loaded with luscious fruit, now only remain a few blackened stumps to show where the trees once stood. No systematic effort was made to eradicate the pest, A saying it was useless to struggle against the evil, while B, whose orchard was close by, gave the bug free license to breed and multiply."

In Morocco only seedlings are grown, and these in great variety. Water is raised for irrigation by animal power.

At Bahia, Brazil, oranges are grown only for home consumption. Sweet and sour limes are also produced. In British Guiana, tangerine, bitter, sweet and myrtle oranges are grown. No irrigation, no pruning, no fertilizing. Limes abundant and cheap, but no lemons. In Ecuador thick and thin-skinned, sweet and sour oranges and limes are grown. The yield of oranges by number is about 1,500,000 per annum. Of lemons about 30,000 were exported in 1890. In Venezuela oranges are grown for home consumption only; they do not thrive near the coast, but in interior valleys. Lemons and limes are also grown. Oranges also grow in a wild state in all favorable localities of Central America, though they are not cultivated or exported. At Guerrero, Mexico, sweet and bitter oranges, navel oranges, lemons, limes, shaddocks and citrons are grown. Some 15,000 boxes of limes, representing for the growers a value of about $25,000, are exported annually, per steamers of the Pacific Mail Steamship Company to San Francisco. Only small quantities of oranges are exported to the same market from De-

cember to February, before other supplies are available. In Sonora, oranges were introduced by the Jesuit fathers, ninety years ago, but they were grown only for home consumption until four years ago, when the advent of the Sonora railroad gave an impetus to the industry by furnishing a means of export to the United States. In 1888 14,000 boxes of 200 oranges each were shipped. Orange trees grow along the sea coast and in the interior up to 3000 feet altitude. The trees are budded and irrigation is practiced. Lemons and limes are grown to a limited extent. There are no insect pests.

In Lower California oranges are grown at San Antonio, San Jose and La Paz. Consul Viosca says: "The citrus family comprises here six species fruitful and profitable for cultivation: citron, shaddock (toronja), large lemons, limes (citrus limetta), lima, sweet lime, king orange. The *lima chichona*, or sweet teat lime, weighs commonly from twelve to fourteen ounces and is very delicious. The king orange is the production of an orange tree, a young shoot grafted into a sweet lime tree, and in time from that to a shaddock or toronja, and finally a shoot from this last is again grafted on a common orange tree. Each of the orange fruit weighs from four to five pounds, and is of very delicate and sweet flavor and also exempt from acid."

Oranges grew quite extensively in Bermuda until the trees were destroyed early in the sixties by the cottony cushion scale. In Dominica orange trees are not cultivated, but grow promiscuously throughout the island. The fruit begins to ripen early in September and continues until the end of November. In Jamaica the fruit grows wild and without other cultivation than keeping down the bush. But the cultivation is regarded as secondary to the use of the land for cattle or sheep pasturage, and the care and handling of the fruit is, as a rule, of the roughest and most careless description. In Trinidad and Guadaloupe much the same condition obtains. In Cuba no regular system of cultivation of oranges and lemons for export is followed. The only plantings are in scattered spots about the buildings of small proprietors. The trees seldom receive the care of good husbandry, and whatever surplus arises in this way over local demand is sold to gatherers, who ship it to the United States.

In Porto Rico orange trees grow all over the island and are cultivated. No irrigation is necessary. Each tree in full bearing is estimated to yield from 1,000 to 1,500 oranges, the surplus crop being exported to the United States.

Formerly oranges were grown quite extensively in Louisiana, but during the last decade the trees have been repeatedly frozen down and the industry is now practically destroyed. Florida and California produce the bulk of home-grown oranges. On the character of the industry in these two States it is unnecessary to dilate here.*

Coming now to the subject of citrus fruit culture in California, we will attempt only a cursory glance, considering the general conditions as compared with those which obtain in other countries. It is not the object of this paper, even if the space allotted were sufficient, to enter into details of propagation, cultivation, varieties, picking, packing, shipping, etc. There is much which might be said about the planting of the seed; much about the nurture of the little sprout—about budding, pruning, cultivating, fighting the enemies of citrus trees, and, finally, about securing revenue from the well-earned fruit. One reason why there is so much to be said on all these branches of the subject is because orange growing is a work of the head no less than of the hands; indeed, without the head-work the hand-work is more than likely to be thrown away. Another reason is because citrus culture in California is wholly dependent on artificial conditions. Citrus trees are not indigenous to our soil, nor are our seasons

* In a future number will appear a fully illustrated article on the culture of the orange as carried on in California from Marysville to San Diego.

suited to their growth without some very material assistance rendered by man. A seed dropped by the wayside will not spring up unattended and in time produce a bearing tree, as it would in the hummock lands of Florida or in the perpetually moist soils of lower Mexico and Central America or in the West Indies. Every citrus tree brought to a state of fruition with us, from Marysville to San Diego, involves more or less attention and labor; and, generally speaking, the more suitable and painstaking this attention is the better the tree and its products.

At first glance these artificial conditions under which we are obliged to labor would seem to be a great disadvantage. But they are not. On the contrary, they form one of the strongest guarantees we have of the success of the industry. One can see at a glance that, if oranges were growing wild in half the mountain canyons and along the streams, so that anybody could have them for the picking, there would be no stimulus to individual effort; there would be no selection and propagation of fine varieties; the markets would be demoralized and, in short, a great, well-organized industry, as we have it to-day, would be relegated to the limbo of forgotten things. In general, that calling which offers ample rewards for the most unremitting care and toil will elicit the most thought, and the most thought brings the most progress. It was among the well-tended farms of a little island off the English coast and on the dearly bought flats of Holland that the Jersey and Holstein breeds of cattle were developed—not on the great plains of Texas, where stock grows without any care whatever. Let us, then, take heart of our many disadvantages—those which involve the most toil and worry—and assure ourselves that they are blessings in disguise. If our conditions are artificial they are, nevertheless, the very best. For example, instead of planting our trees on perpetually moist land, which is apt to be too cold, and therefore to lower the standard of the fruit, we may select the warm upland and supply artificially just as much moisture as the tree requires to bring it to perfection. We are thus independent of seasons of drouth, and we have no seasons of flood that trouble our groves. Our long summers give a maximum of sunshine which the tree requires for its healthy development and the production of high-flavored fruit.

In a word we may justly felicitate ourselves on the fact that in methods of citrus culture California leads the world. The choicest varieties from every quarter of the globe have been introduced and are treasured and propagated in accordance with their value and adaptability to our soil and climate. Our methods of propagating, cultivating and treatment of fruit are the most advanced. In fertilizing we were somewhat derelict a few years ago, depending rather too much on the natural fertility of soil and the stimulus from irrigation; but much attention is now given to fertilizers, natural and prepared. Science is here made the guide, counselor and friend of the industry, and the cultivator now has available every means of fertilizing the soil which the most progressive horticulture can suggest.

In the matter of combating insect pests, science has again been our best friend, and we have practically, and, it is hoped, permanently secured the mastery.

Our markets are principally in our own country, and there is still a wide margin for growth in shutting out foreign importations, with the great advantage of a tariff in our favor. If the home-grown product does not yet half supply the consumption of the country, there is every incentive for doubling the production. Besides, the market is one which will grow with what it feeds on. The United States is constantly increasing in population, wealth and luxurious taste, and the demand for those standard luxuries—oranges and lemons—will grow with the general advance.

In orange growing, taking into account the vast acreage planted, but not yet in bearing, we are much nearer the natural limit of supply and demand than we are in the production of lemons and limes. I look for an immense stimulus in the planting of the acid fruits within the next few years.

There is still a good field of profit in manufactured products of citrus trees which has yet hardly been entered upon. In these branches we need to take lessons from the South of France. Why should we not utilize the tons of orange blossoms which our trees produce in surplus of all fruit requirements almost every year? From these the French make orange-flower water, perfumes and confections. From the rinds of the fruit they extract essences and oils; from the pulp they make marmalades, glaces and confections.

The juice of lemons and limes is the basis for important articles of commerce in some countries, being either shipped in the liquid clarified form, or converted into citric acid. The advantage of these manufactures is that they largely utilize what would otherwise go to waste, and all revenue received from them above the cost of labor and machinery is clear gain. A South of France province would grow opulent from the refuse citrus products of California.

THE WOOING OF THE BIRDS.

By Henry Grant Curtiss.

TO say that the courtship of the birds is a caricature of the grand passion of the human race may not be strictly true, yet when the wooing of our feathered friends is compared to that which holds among men, the similarity of method, the amusing analogies constantly met with, create the impression that the same general principle holds to the same extent in both. That birds literally fall in love, are consumed by jealousy and are impelled to destroy their rivals, pine, and even die when separated from the object of their affections must be conceded; while the same methods which are employed by human lovers to win the affections of the opposite sex are often reproduced with the greatest fidelity. Certain paroquets, known as love-birds, are well known for their singular demonstrations of affection one to the other, a greater portion of their time being occupied in delicate and amorous attentions; and that the love between them is intense, has been shown in several instances where the male has pined away and died when separated from his mate.

In human courtship the fair one is won by many blandishments and arts the prototypes of which may be found among the birds. The human lover, as a rule, endeavors at first to attract the attention of the object of his choice by carefully decorating his person, paying particular attention to his toilet and costume, well knowing that in many instances the female eye is caught by the man of fashion, while the one who neglects his habiliments is passed by with scant notice. The human lover uses his voice, serenades his mistress and touches the guitar or lute beneath her window. He haunts the localities which she frequents, and exhibits himself whenever occasion offers, by various methods striving to create the impression that physically he is superior to other men. As the acquaintance progresses he lavishes upon her gifts of flowers and beautiful objects of various kinds, suggestive in their nature of his growing passion. If he is an athlete he gladly welcomes some contest in which he can exhibit his courage, and where he can demonstrate his prowess, enthused by the presence of his lady-love. In the old days as a knight he wore her colors or flower at the tourney, and defied all comers, while in modern times the same spirit actuates him, finding its expression in different fields.

By those methods he wins her esteem and finally her affections, and secures the prize, often bearing her off in spite of the most violent opposition. Among the lower tribes of men much the same means are employed. In some cases the wooer is obliged to prove his ability to support a wife; in others the lover steals up to the village of his beloved, and, watching his opportunity, fells her with a club, and with the assistance of his "best man," bears her away. Kissing is often a feature of courtship among the civilized nations of the earth; among the native Australians it is not known. Among some races the maiden is placed on horseback and becomes the bride of the man who catches her. The courtships and love customs among mankind differ very materially, yet in almost every instance there is a striking parallelism with the love actions of some of the birds. The latter court the females with an ardor that cannot be misunderstood; exhibit their personal attractions, their gorgeous feathers and tints, endeavor to gain their affections by the presentation of flowers and bric-a-brac of various kinds; treat them to dainty tid-bits of food with much ceremony and circum-

stance, serenade them with notes vocal and instrumental, and endeavor to win them by bursts of song and melody. Many birds go through marvelous performances, trials of grace, strength and endurance before the opposite sex; try conclusions with rivals, and fight them to the death. Certain birds, conspicuously the pigeons, kiss each other during the season of courtship, and various others caress the bills of their lovers with their own. In short, almost the complete line of attack made by the human lover upon the affections of the object of his choice is found among the birds.

The brutal method of obtaining a wife by the use of a club finds a prototype among some of the woodpeckers, where several males not only fight among themselves, but pursue the fair one until she is completely exhausted. From tree to tree she is chased by a vociferous throng and terrorized until finally she is reduced to the extremity of accepting the aid of one of the lovers, whereupon the two turn upon the rest and beat them off. In certain human tribes the wooer must not simply secure the affections of the fair one, but must satisfy her family, by various tests, that he is fitted for the responsibility. His general appearance, stature, muscular development, ability to work and fight are all taken into consideration, and if he passes all the tests he secures the object of his choice. In other tribes, notably those of the Dyaks, the attentions of a lover would, some years ago, not have been received unless he could show a goodly collection of human heads. Those who have noticed the courtship of cranes and herons will note an interesting instance of a methodical exhibition of physical agility. The actions of the sandhill cranes while engaged in their courtships are, perhaps, the most interesting. At the pairing, or mating time, numbers have been seen to congregate, evidently for the especial purpose of testing their several claims to the attention of the fair ones who stand near by in groups. An acquaintance of the writer owned a farm in one of the Western States where these birds came to nest yearly, and from the concealment afforded by a haystack was witness to some remarkable exhibitions on the part of the amorous feathered swains. At certain times they assembled in groups of from ten to twenty, standing for a while erect like statues. Suddenly a bird would leap several feet into the air, coming down gently with half-spread wings, to run around with bill lowered, as if pretending to search for something which evidently existed in its imagination alone. After running about the crane stops suddenly, giving way to another bird, that leaps into the air so vigorously that it fairly clears the back of a comrade, then dashes away, piroueting, dancing, fluttering its wings, throwing itself into endless positions calculated to attract the attentions of the demure females. The movements of these birds are infectious, and are followed by others, and soon a number of cranes appear to have either gone mad or to be engaged in a contesting dance. Some trot around in a circle, others run quickly, some jump into the air as if hopping on one foot, the entire performance being a most ludicrous exhibition in which what are usually sedate and dignified birds appear to have lost their reason.

These dances, at least in certain cases, are a prelude to the mating season, being a literal exhibition before the females. The writer has been fortunate in observing the love antics of the great heron, its dances being almost identical with those described, and among many of the group this curious love-making may be observed; that of the Demoiselle crane (*Tetrapterix*) being perhaps the most remarkable. The courtship of these birds is so singular that, were it not authenticated by careful observers, the recital might well excite suspicion. According to Prof. Van Nordmann, the Russian naturalist, the cranes are first observed in Southern Russia in the month of March, at which time flocks of several hundred begin to arrive for

the mating. They are now seen standing about in groups and gathering in bands every morning and evening, when they go through performances that can only be compared to methodical and carefully prepared dances or an elaborate minuet, having for its object a display of the rare beauty and agility of the males. A level, flat stretch of land is selected for the exhibition, generally along the edge of some stream. Here the cranes place themselves in line or in rows, as the case may be. "They dance," says Van Nordmann, "and jump around each other, bowing in a burlesque manner, advancing their necks, raising the feathers of the neck tufts and half unfolding the wings. In the mean time, another set are disputing in a race the prize for swiftness. Arriving at the winning post, they turn back and walk slowly and with gravity, all the rest of the company saluting them with reiterated cries, inclinations of the head and other demonstrations, which are reciprocated. After having done this for some time, they all rise in the air, where, slowly sailing, they describe circles, like the swan and other cranes. After some weeks these assemblies cease, and from that time they are seen constantly walking in loving pairs together." That this exhibition is closely associated with the selection of mates is, in fact, a part of their courtship, there can be but little doubt.

Equally singular is the courtship of the cock of the rock, according to Le Vaillant. The bird is found in South America, and in former years its reddish-yellow feathers formed one of the imperial robes of State. At certain times, previous to the pairing, the birds meet in a given locality, as if by previous arrangement, and form an irregular enclosure or circle, in the center of which a bird takes its place as a performer does in the circus, walking around and around, lifting up its feet, stretching its wings from side to side, extending its head, hopping this way and that; in short, doing its utmost to exhibit itself to the assembled audience. When the performer is thoroughly exhausted it retires, and its place in the ring or arena is taken by a fresh contestant for honors that, with different methods, seeks to make an impression upon the group of females near at hand. One after the other the birds go through this singular dance that is supposed to be a part of the courtship of the birds and which can but call to mind similar exhibitions among human beings.

Audubon refers to what he terms the love antics of the wild goose, and describes its courtship. The love-making of the humming bird is often accompanied with contests between the males, resulting in the death of one or both. What is supposed to be the courtship of the Peruvian humming bird (*Loddigesia mirabilis*) has been observed by a naturalist. It is carried on in the air, the bird stationing itself immediately below a limb in the air and remaining in one place with its tail feathers spread out so that they appeared like a twig upon which it rested, and were at right angles to the body. When exhausted the birds would return to a branch to rest, to again take their places in the air, occasionally changing places, both endeavoring to display their manificent plumage. Their crests of vivid sapphire-blue, breasts of golden green, with ruffles of white about their feet, made a most attractive spectacle. The contests of these little creatures sink into insignificance beside those of the ruff—a wading bird—which, at the time of courtship, becomes a knight errant, throwing down the gauntlet to any and all comers. So pugnacious is the ruff that it has certain places set apart for its duels, where the males meet upon the field of honor and settle their disputes to the bitter end.

Of all the bird-lovers the small and remarkable group known as the bower-birds and their allies astonish us by what may be termed their æstheticism in love-making. No human lover of culture and refinement approaches the

subject with more deference to the tastes of the fair one than these bird courtiers that captivate the object of their devotions, not by brutally following them around from tree to tree, but by erecting elaborate structures, garnishing them with ornaments from the bird point of view, solely for the purpose of producing an effect upon the æsthetic sense of the female. The love of finery, of beautiful objects, of self-decoration, is inherent in human life. The dusky savage wooer presents the father or the family of his lady-love various gifts, and later makes offerings to the fair one herself. The lover high in the scale of civilization considers gift-making an essential of the wooing—a feature that custom sanctions, and of two lovers, the one whose delicate attentions, expressed in gifts of flowers, jewels, books and other objects of use or bric-a-brac, will in many cases be received with the greatest favor. The lover thus gives a tangible and delicate expression of his emotions. His gift is a token of his regard, and may be interpreted in various ways, while its very character may imply a delicate compliment to the recipient. By gifts of flowers he recognizes her love for the æsthetic and beautiful in nature, and is but following out a plan of seige upon her heart as old as the hills themselves. The object of the young man's affection is taken to balls, festivals, fairs, the theatre or circus and to various places of amusement, the wooer often actuated by the sentiment that he can insensibly place her under certain obligations which will assume the form of a reciprocation of the fervid sentiments which inspire him. Do we not find a parallelism in the bower-birds and their cousins? These birds are surely the cavaliers, the gallants of bird creation. They are knights in all the term implies, and are possessed of romantic and æsthetic dispositions. They lay at the feet of the objects of their devotion pledges that are at once complimentary and delicate recognitions of a love for the beautiful. The perfection of this bird courtship, where the highest æstheticism is expressed, is found in the actions of the little bird known as the "Gardener," or *Amblyornis inornata*. The circumstance is so remarkable that the first reports were considered the efforts of some vivid imagination or the improbable tale of some native wag; but finally no less an authority than Count Rosenberg, the Dutch naturalist, came forward and described the home or hall which the bird builds and in and about which its courtship is carried on. The first published account was given by Dr. Beccari, the Italian naturalist. In traveling through the interior of New Guinea he finally came to the Arfak Mountains, where his observations were made. One day, having left the party and wandered away by himself, he came upon a miniature cabin standing in the midst of a little meadow of green, studded with flowers. The resemblance to a play-house carefully built by some intelligent child was complete. The entire structure was artificial; even the meadow was formed of moss brought from a distance for the purpose and carefully arranged and kept clean. The cabin was about three feet in diameter, having the stalk of a tree running up through the center and formed of the stems of an orchid (*Dendrobium.*) The bird or birds had selected a small shrub, which had a trunk about the size and height of a walking-stick. Around the base of this moss was packed, forming a cone five or six inches across. Against the central trunk, about a foot and a half from the top, the stalks of the orchids were laid or leaned, being placed regularly so that an opening on one side, or door, was left, a horseshoe-shaped interior being the result. All this is wonderful enough, but Dr. Beccari suggests that the orchid was especially selected for raftering, on account of its disposition to live and grow after being transplanted. In any event, such is the case. The sticks or stems are interwound with grasses by the birds, and the whole roof grows together so that it is waterproof, and is a complete residence with a semi-circular interior,

a door and a lawn. When the structure is complete the bird proceeds to ornament and decorate it, gathering choice and highly colored flowers, scattering them upon the lawn or meadow, or fastening them in the sides of the house, so that the structure gives the impression of having been decorated by some tasteful human hand. Referring to this, Dr. Beccari says: "But the æsthetic tastes of our 'gardeners' are not restricted to the construction of a cabin; their fondness for flowers and for gardens is still more remarkable. Directly in front of the entrance to their cabin is a level place occupying a superficies about as large as that of the structure itself. It is a meadow of soft moss, transported thither, kept smooth and clean and free from grass, weeds, stones and other objects not in harmony with its design. Upon this graceful green carpet are scattered flowers and fruit of different colors in such a manner that they really present the appearance of an elegant little garden. The greater number of these ornaments appear to be accumulated near the entrance to the cabin. The variety of objects thus collected is very great and they are always of brilliant colors. Not only does the *amblyornis* select its ornaments from among flowers and fruit, but showy fungi and elegantly colored insects are also distributed about the garden and within the galleries of the cabin. When these objects have been exposed long enough to lose their freshness, they are taken from the cabin, thrown away, and replaced by others." It was not the good fortune of Dr. Beccari to observe the bird in its cabin, but he ascertained that the latter was distinct and separate from the nest, which was built in a tree and that the cabin was exclusively a place of meeting for the sexes, or a hall of courtship. The natives called the bird the *tukan-kofan* or gardener bird, and rarely destroyed the little cabins when they found them. The Papuans, who are also familiar with it, call it the master bird or *buorungurd*, and believe that the house is erected as a place where the male can present gifts to the female. That the flowers are placed there purely as ornaments is shown by the fact that in the rear of the house is a heap of withered flowers, which have been deposited there to make place for fresh and more attractive decoration. In all lower animal life this is perhaps the most remarkable exhibition of a taste that approximates that known as æsthetic among human beings. The *amblyornis* is a small bird, about half as long as a robin, a rufous-colored little creature whose general appearance gives no suspicion of its wonderful architectural attainments. What human lover gives more delicate attention to his lady-love? The bird-lover not only pays assiduous court, but he builds a house for the especial convenience of his lady-love; embellishes it with beautiful works of nature, and amid the most romantic surroundings pays his addresses. The human lover goes to remarkable extremes during the courtship, but he has yet to erect an art gallery for the express purpose of carrying on his devotions.

When the satin bower-bird, *Ptiloonorhynchus violacens*, falls in love, the preparations for the capture of its mate are almost as remarkable as in the case of the gardener bird. Years ago, when Europeans first penetrated the Australian bush, they heard accounts from the natives of birds that built houses, but thinking them simple exaggerations, paid but little attention to them. Finally reliable naturalists took an interest in the matter, and it was ascertained that certain birds of the country not only built nests, but more or less elaborate houses, or runways, for the purpose of gratifying their æsthetic tastes and those of the females. Mr. Gould, the well-known ornithologist, first examined these bowers, as they are called, in the cedar-brush of the Liverpool Mountains, and several of the structures, with all their art treasures, may be seen in the collection of the British Museum. Mr. Gould found the bowers of the satin bird generally in the shade of some tree in a retreat not easily

found. The first act of the bird is to collect a number of twigs and sticks, which it places upon the ground with some regularity, winding them in and out, forming a platform, or floor, upon which the bower is to be built. The timbers selected for the sides are lighter than the others, slender and flexible, and are taken separately by the bird and thrust into the platform, so that they bend, or curve, inward, almost meeting. A row of these extends a greater or less distance, as the case may be, or according to the taste of the builder, and then a row is placed on the opposite side, or the two walls may be framed at the same time, the twigs being arranged at a regular distance, and inclined so that they nearly, if not quite, meet at the top. When completed the hall, or structure, is a tunnel of twigs, the latter all carefully arranged so that the branches or crotches are upon the outside, offering no obstacle to the birds as they pass up and down. The bower-bird does not stop here. It has erected a structure that is far ahead of the houses of some savages, and now proceeds to demonstrate that it possesses that which the savage has not—a love for the beautiful, an æsthetic taste well shown by the decorations of the hall of courtship. What may be termed bird bric-a-brac is now collected; any bright object which would attract the attention of any ornament-loving female is seized and brought to the hall; bright feathers are attached to the twigs; white or bleached bones of singular shape are hung on the crotches; attractive shells are strewn about, some birds exhibiting a special liking for one object, some for another. A certain helix or white snail shell is found in the hills, often by the dozen, while bits of red flannel, pieces of glass and quartz are always present if the bower is in the vicinity of a camp. So well is the habit of the bird understood by natives that if any small object is missing the bric-a-brac heap, or collection of the bower-bird, is examined, and the article is possibly discovered. In one instance a brass button, a piece of shining tin, a stone tomahawk and a tobacco pipe were found in one bower, having been collected from time to time by the birds. The bower completed, and its ornaments hung and placed in position, the birds run and hop through it, chasing each other about, showing their delight in many ways; picking up the various objects and changing them about to suit the fancy and caprice of the moment. The satin bower-bird that thus goes a-wooing is a richly hued bird as large as a magpie, the prevailing tint being a satin-black, while the female is a grayish green, with a pale, yellowish tint beneath. It must be conceded that a bird that attempts to influence the object of its affections by appealing to her love of the beautiful must possess more than ordinary intelligence—at least a marvelous resemblance to the workings of the mind in lovers of a much higher degree.

Equally singular is the courtship bower of the spotted bower-bird (*Chlamadera maculata*). While the satin bower-bird is found between the mountain ranges and the coast, this little builder, with its lines of black and rose-pink feathers, lives in the interior regions. Its bowers are larger and longer than the one described, being in some instances more than three feet in length. In its general formation it is the same, the walls being formed of twigs, but provided with an inner wall, or tapestry, of rich grasses, so arranged that the heads, or tops, mingle and join together. In the arrangement of this inner lining of grasses there is an exhibition of remarkable intelligence. The ends are not, in every instance, thrust into the ground, and would not retain their upright position were not some especial expedient adopted. This consists of weighting the ends of the grasses down with stones or pebbles, which the birds collect for the purpose, each straw having its stone. The latter, according to Mr. Gould, who discovered the bowers and watched the birds in them, diverge from the mouth of the run on either side, so as to form little paths through

which the birds run. The bric-a-brac collections of these birds are often immense, when the size of the bird is considered, and many of the articles must have been brought six or seven miles. While the ornaments are scattered along the hall, the greatest number are found at either entrance, where a heap is often discovered, made up of shells, bones, roots of curious shape, snails, white or curiously colored pebbles, seeds,—in fact, anything that is sufficiently curious to attract attention. The specimens of these birds kept alive at the London Zoological Gardens do not nest, but they have given many exhibitions of building the halls of courtship, being provided with materials for the purpose, and when complete they would run through the tunnel, uttering loud notes. There are several other species which might be mentioned which erect bowers, or houses, separate and distinct from the nest, into which the female is beguiled and won by what is evidently an appeal to her love of finery and the beautiful.

No one could watch the courtship of the albatross, known familiarly as the mollymawk, and believe that birds have not an equivalent for kissing. This bird (*Diomedia culminata*), is about as large as a goose, nearly pure white, with a yellow patch or streak on the sides of the head. Even after the pairing the courtship is continued—a lengthened honeymoon, as it were. The birds having paired, select a place for the nest, which is a cylindrical mound of grass and clay about ten inches in height, with a slight depression on top for the egg, which is, in reality, held in a pouch. The female sits on the nest, and, according to Professor Moseley, the naturalist of the "Challenger" expedition, the male stands beside her and pays her assiduous court. Professor Moseley watched the birds and observed what he terms a curious courtship. The male stretches out his neck, erects his wings and feathers a bit, and utters a series of high-pitched, rapidly repeated sounds not unlike a shrill laugh. As he does this, says Professor Moseley, he puts his head up close against that of the female. Then the female stretches her neck straight up, and turning up her beak utters a similar sound, and rubs bills with the male again. This maneuver is constantly repeated. If this is not kissing, as kissing goes, what is it? The naturalist of the "Challenger," in referring to the courtship of the great albatross (*Diomedia exultans*), says: "The male, standing by the female on the nest, raises his wings, spreads his tail and elevates it, throws up his head with the bill in the air or stretches it straight out forward as far as he can, and then utters a curious cry, like the mollymawk's, but in a much louder key, as would be expected from his larger larynx. Whilst uttering the cry the bird sways its neck up and down. The female responds with a similar note, and they bring the tips of their bills lovingly together. This sort of thing goes on for half an hour or so at a time."

Equally as curious is the courtship of the long-billed and pouched pelican. The voice of this bird resembles the sound produced by a person with asthmatic symptoms, and the vocal part of the courtship brings forcibly to mind the earnest conversation of two victims to this malady. The birds caress one another with their long beaks the while, ruffle their feathers and wag their heads in a ludicrous manner. The courtship is carried on either when swimming about or upon the bars and islands these birds affect. The nests of the bird, or at least those observed by the writer, are remarkable for their roughness, resembling an armful of refuse dropped promiscuously into a low mangrove tree. The eggs are held by a special dispensation of Providence, apparently no attempt being made to form a hollow or receptacle, the big blood-flecked eggs being simply caught in the crevices or held by sticks or weeds—the flotsam of the Gulf Stream.

In the courtship of many birds there is employed a combination of

vocal and instrumental sounds. This is true of the grouse. In the spring the males produce curious notes caused by the inflation and contraction of their gular sacs. In the sage-cock the latter are large and conspicuous and covered with a bright yellow skin. The sound comes as the sac is inflated, and the air slowly exhausted. There is heard, low at first, a deep, hollow tone, penetrating and resonant as it increases, resembling the sound made by blowing violently into a hollow tube or reed. In this manner the booming love-calls of the prairie chicken are made. Others, as the blue grouse, utter a sound resembling the whirr of a rattan cane; the sound being produced by the inflation and contraction of two orange-colored sacs.

The courtship of the black-cock is a most interesting performance. The birds gather in large numbers at the time, the assemblies being known in Sweden as an "Orrlik" or "Lek." An open or clear spot is generally selected, where the males strut about, going through a number of maneuvers intended to attract the attention of the females. The male makes every attempt to display his attractions, stalking about, ruffling up its wings, with head high in air, in a manner at once pompous and laughable to the bystander, who is, perchance, playing the part of Paul Pry upon the bird comedy in real life. Occasionally the wooer stops, stands silent for a moment, then comes the "boom," "boom," which proves to be a summons to the opposite sex or a call, the attractions of which they cannot resist, numbers gathering to listen to the serenade, after which the pairing begins and numerous matrimonial alliances are consummated.

The love-making or courtship of the magnificent capercaili (*Tetraus Urogallus*) of Scotland is always watched with interest by sportsmen and lovers of birds. The bird is a grand creature —easily the king of the tribe it represents, and, by its size and handsome appearance, considered one of the finest game birds ever known. It is found in the pine forests, and generally by the end of March begins its courtship, which results in each male obtaining several mates. When engaged in its ante-nuptial love-making the capercaili takes its position in a clearing in the forest, or at other times on the upper limb of a lofty pine. His object now is to attract the attention of all the females of the vicinity and by his vocal and personal attractions secure their affections and captivate them. It raises its head, utters a note which sounds like "pellep," repeated several times at near intervals; gradually the bird becomes absorbed or carried away by its refrain; highly excited, its body sways to and fro; sounds like *kiliekop* come from its inflated throat, and then with head thrown back and tail raised it utters in impassioned strains the notes, *hede, hede, hede.* So engrossed is the wooer at this time that it is utterly carried away and becomes oblivious to its surroundings. The "spel," as it is also called, is repeated until in response the females gather from the surrounding bush and gaze at his splendors. Our lover is a jealous fellow, allowing no intrusion upon his supposed rights, attacking other males that venture too near or join in the serenade or love-calls.

The drumming of the ruffled grouse is a familiar sound to those who follow this fine game bird, and it may be heard at various times during the year. Exactly how the sound is produced is something of a mystery. While producing it the male usually stands upon a fallen tree trunk, and, stretching himself in a horizontal position, beats downward with its wings, holding them rigid. The blows are first given with deliberation, but gradually the bird becomes excited, and they become more rapid, finally producing a peculiar, far-reaching, falling sound, which not only has a decidedly penetrative faculty, but combines ventriloquistic features, as the bird is difficult to place, the sounds appearing to come from several places at once. There is no little difference of opinion as to the way the sound is

produced. Some careful observers believe that the wings strike the flank only, while others are equally positive that they strike each other over the back, while many sportsmen and persons familiar with the birds, claim that the wings are struck against the tree, so producing the notes. The movement of the wings is so rapid that it is almost impossible to determine how the sound is made. In the breeding season it is a call to the females, yet is used at other times. The great capercaili is a polygamist, a Mormon among the birds, proud in the possession of a harem, while the allied jungle fowl (*Gallus ferrugineus*), is, it is believed, monogamous in its wild state, preferring the customs of the highest type of mankind, and happy in the possession of one wife. Drumming as a means of calling and captivating mates is not confined to the grouse alone. The fine pheasant (*Euplocamus horsfieldi*), with its bluish-black tints and ornamental tail, found at a high altitude in Asia, drums loudly. This serves also as a challenge, and many males collect to dispute the right of the drumming *kallege*.

That the feathered wooer depends upon its personal appearance to captivate the female is well known. As a rule the male is a magnificent creature, bedecked in plumes and colors, especially adapted to catch the eye of the demure, somber-colored female. The peacock, the male of the Argus pheasant, and the cock lyrebird are examples, where the tints, colors and designs are indescribable in their beauty. Among the pheasants the male is a superb creature, the female altogether unattractive. The courtship of the Crimson Tragophan (*Cerzornis*) is accompanied with a personal display of charms which characterize the bird as a feathered Beau Brummel. Rich in coloring, it also has two fleshy horns capable of being erected on either side of the head, while pendant are wattles of brilliant hues which can be raised and rendered more conspicuous. The courtship begins in April, the males now calling their mates, enticing them by their love-notes and serenades to some clear spot in the woods of the lofty altitudes of India or China, where they are found. There, as a naturalist has said, the males begin to "show off" before the females. A cock walks up and down in an excited manner before a group of females, displaying all his charms of color to the best advantage, and then having probably made a selection of a female the ardent lover literally throws himself at her feet, or to be exact, places himself before her in a crouching position. The tail is stretched along the ground, the head jerked violently from side to side, forward and back, to display the gorgeous wattles. This concluded the lover brings the rich colors of his wings into play by unfolding and causing them to vibrate, the tints and hues blending and flashing in a manner that must dazzle the eyes of the demure and homely female. Now the neck of the crouching lover seems to dilate; the horns upon the head stand erect and vibrate with emotion, and the bird finally springs to his feet, becoming at once not a supplicant but a grand creature, proud in his beauty and confident in his power to fascinate and please, and that the conquest is complete there can be but little doubt.

The most remarkable adornment among birds is found in the birds of Paradise, the plumes, remarkable colors and pink legs of some of the males rendering them extraordinary objects, especially when compared or contrasted with the demure and unattractive females that are possibly aware of their inferiority, as in some cases, and especially in the emerald bird of Paradise (*P. apoda*), the females become the wooers—a leap-year-like performance that has been described by M. Lesson, the French naturalist. The females collect in flocks in lofty trees and cry out in concert to their lovers, which later, are seen in the midst of a seraglio of fifteen or more females, displaying their charms. By a vibration of the entire plumage the male thus on exhibition raises his feathers, until the long delicate plumes of the side sur-

round the bird like a golden halo, in the center of which, says M. de la Presuage, the bright green head forms a disc, looking like a little emerald sun, with its rays formed of the feathers of the two plumes.

The courtship of many birds is carried on in the air, and is an aerial exhibition of evolutions of great boldness and beauty. The snipe and various other birds perform remarkable gyrations at the mating-time, while the woodcock, the goatsucker and many more have been seen undertaking feats of singular grace and beauty. How necessary an exceptional personal appearance is in the bird world of love and courtship is illustrated by many cases where a flock of wives has deliberately deserted the male for a more resplendent husband. A flock of ducks in the lake at Central Park, New York, deserted the male, being captured by a wild and richly hued drake that alighted among them. The old bird made every attempt to drive away the new-comer, but without success. The females were captivated, and ignored him completely. The late Charles Darwin says: "That Lichtenstein, who was a good observer, assured Rudolph that the female widah bird (*Chera progne*), deserted its mate when the latter lost the fine tail feathers with which it was ornamented, during the mating season." Dr. Jahger, Director of the Zoological Garden at Vienna, states that a male silver pheasant that had been triumphant over females was superseded by a rival immediately upon accidentally losing its tail feathers, which constituted its chief attraction. Fine feathers not only make fine birds, after the old adage, but successful ones in love and questions of the heart, and it need not be said that these instances of faithfulness find their prototypes in many lovers of a much higher degree.

THE DESERT SEA.

By H. N. Rust.

THOSE who have crossed the American continent in imagination only, know its desert as a yellow patch on the map. Those who have crossed it in the body will recall a vast expanse of sand, level and deserted, hot, but not dangerously so, yet hot; a region that in its most cheerful spots has a grotesque cactus vegetation, and in others is devoid of growth, and sinks away in depressions several hundred feet below the sea.

The desert between Yuma and the mountains of Southern California is especially barren, abounding in level stretches, and several of the stations are two hundred and forty or more feet below the level of the sea. The most important stations in the desert are Salton and Indio; the former being remarkable for its salt beds, while the latter has earned no little reputation as a health resort. Both are in depressions and literally situated on an ancient ocean, or estuary bottom. The beds of salt indicate that ages ago the ocean covered the locality, and the old coast line can be easily traced along the edge of the desert, eighty feet in height above the present level, showing that at one time a vast and deep body of water swept over the spot. Near Salton the surface is covered for miles with a deposit of white shells, that gleam and shimmer in the sunlight like snow, and in some places they are blown up by the sandstorms of the desert in winrows. The meaning of this is that some time in the past, as suggested, the locality has been the bottom of a large body of water, the waves of which beat against the fronts of the Southern Sierras.

In walking along the edge of these mountains the old water-line can be readily seen, indeed, even from a long distance, winding in and out among the inequalities of the main range, where it fronts the desert. The most interesting portion of this ancient sea is a valley about sixty miles in length by fifteen miles wide, through which the Southern Pacific Railroad winds its way after leaving the Pass of San Gorgonio. This valley is nearly surrounded by mountains, those on the west attaining an altitude of over two miles, being snow-capped in winter, presenting a magnificent picture as the tourist approaches over the dry, sandy waste. Deep canyons reach up from the beds of the seasonal streams, winding up the summits, affording scenery of a grand and striking nature. One of these canyons is famous for its palms, many of these giants being seen growing there, fighting for life amid the dry and arid surroundings. It might be termed the death valley, as life is rarely experienced, yet in it live the Cahuilla Indians to the number of four or five hundred, the tribe amounting to nearly one thousand in all. Why the Indians prefer this hot place it is difficult to say; that it is healthy there can be but little doubt, the great age attained by many of the Indians attesting to this. One chief, Cabazon, died here in 1848, it is said, at the age of one hundred and forty years, while many instances are known of centenarians.

To the geologist this valley possesses an extreme interest, as the old water-line of discolored granite produced by calcareous incrustations, can be distinctly seen and followed for miles on the higher portions of the land above water. Many bits of pottery are found in high places, telling of ancient occupation. But perhaps the most remarkable and striking evidence of ancient occupation in connection with the sea are what the Indians call fish-traps, which they claim their forefathers em-

Palm Canyon. Leading up from Salton Sea.

ployed when the sea was there. The "traps" are circular in shape, formed on the face of the range, being simple depressions surrounded by a wall of granite. They are from two and a half to nine feet in diameter, and give the impression that they were built out at low tide, so that as the water came in fish would enter and become caught. Possibly they may have been pens for holding fish caught by the fishermen. In any event, they were for some such purpose, and are among the most interesting features of this ancient seashore.

The few Cahuillas have many traditions relating to the sea, one being that their ancestors lived upon the fish taken here, and that the water subsided slowly, then came back suddenly, drowning large numbers of them. Another tradition of especial interest, is that white birds came sailing over the sea at this time, bearing little men, who, after obtaining permission from their ancestors, sailed away. The white birds were, in all probability, white-sailed ships, but who the people were is a question somewhat difficult to answer. The bed of this ancient lake, up to the present time, has attracted the attention of only the curiosity lover who is interested in the fact that here is a depression nearly three hundred feet deep, and that of the invalids who find conditions here favorable to their requirements.

The earliest authentic information regarding this depression is found in the Government survey of the section made in 1856. The account describes the sink as a dry salt lake with a length of twenty-seven miles and a width of from one to nine, in all embracing an area of 156 square miles, while the sink receives the drainage of at least nine thousand miles of a dry and barren country. The old survey shows that floods have occurred in former years, as marked upon it are two channels running from the south, one run known as the New River, shown in the accompanying map, while the other is an irregular broken arroyo, that has at one time been the bed of a mighty torrent. Near this are found the remains of old Indian villages, and from the quantity of pottery, polishing stones and other objects of rude Indian art, it is evident that at a time not extremely remote the river bed contained a permanent stream, upon the banks of which the Indians lived. What closed the river might appear a mystery, but at Alamos Muchos, a few miles south of the Mexican line, the old channel is seen to have been closed by sand ridges that extend east and west across the desert, reaching from Indian Wells to the high lands of the east. In this case, then it was the wind that playing fitfully with the sand of the desert, blew it up into the barriers, that had the effect of depopulating the Indian villages and drying up the river by stopping the supply. According to the investigators sent out by the Southern Pacific road, E. L. Swain and H. Hawgood, the sand ridges formed a dam impounding the overflow of the Colorado, New River, forming a spillway at the western portion of the dam. Until last February the spillway has been sufficient, but the extraordinary flood of that month broke away the sand ridges and the water of the Colorado began to pour into the desert through several channels at a rate of 16,000 cubic feet per second, gradually filling the bed of the old lake and creating widespread wonder and astonishment. The Indians were the first to take the alarm. Remembering the old tradition of the destruction of their forefathers they packed up and left for the mountains, some going high up on the lofty slopes near Banning. To increase their excitement and fear, one of their prophets or medicine men announced that the Messiah was coming, and that he would cause a flood to rush into the valley and destroy the last of the nation. The Indians are very superstitious and it did not require much urging on the part of the medicine men to cause a panic, and at the time of writing many are in camp on the uplands waiting for the flood. The possible advance of the water upon the

Map of Salton Sea.

Southern Pacific Railroad made investigation as to the cause necessary. A boat was carried from the Pacific, over one hundred miles, and several venturesome mariners started out on a voyage of discovery under a sun that gave 140°. They sailed forty miles but could not find the limit, and fearing that they might become stranded they gave it up and returned. A half-breed Indian was then sent out to run around the lake and find out its dimensions, but he returned in a few days almost exhausted, saying that he could not go around it, the extent of surface being too great. The boat was again put out and the depth and saltness of the water taken at various points. The lake was found to have a maximum depth of about three feet, while currents appeared to run in all directions.

The most extravagant rumors were started as to the cause. Some believed that an earthquake was causing water to flow up through some subterranean springs. Others thought that the waters of the Gulf of California were flowing in. Several expeditions were organized—and the adventurous editor of the Banning *Herald*, H. W. Patton, succeeded in sailing from Yuma to Salton, covering the entire length of what is now called the Salton sea—the trip being made under somewhat remarkable circumstances, and requiring no little hardihood, as the voyagers did not know where they were going, the channel presumably abounding in whirlpools and sand bars. Mr. Patton made the attempt as chief of an expedition organized by the San Francisco *Examiner* and sailed from Yuma in a temperature of 112° in the shade, enough in itself to have deterred most men. They left the Colorado, fourteen miles below Yuma, the boat turning into a wild slough. For ten miles they drifted then finding a village of Sigeno Indians. For fourteen miles they followed the slough which took them into a laguna or lake formed by the overflow of the Colorado, and there they saw one of the sources of the trouble. At or near Sigeno the water was leaving the laguna and flowing in innumerable streams due west, making its way to the desert. Near here a bar was forming in the Colorado, which was suggestive of an ultimate important change in the river bed. The desert here resembled the delta of a river, islands and bars of sand appearing on every hand, while the water, with a depth of twelve feet, rushed on, creating a continual change in the surroundings. Groves of mesquite trees were passed deeply submerged, only their tops showing, and not far from here the old Yuma and San Diego stageroad was passed with a depth of fifteen feet of water over it. The river took them to the south of Cooks' Wells and Gardners, and gradually spread out into a vast lake. They passed the old stage station, Alamos Muchos, having sailed over one hundred and fifty miles in making the fifty-two, as the crow flies, from Yuma, the stream here being half a mile wide and at least twenty feet deep. From the old stage station they sailed north, meeting ten miles away another large stream. The stream varied, now being narrow or spreading out into a lake so wide that its borders could not be seen. Remnants of human occupation were often passed, old camps, broken wagons, deserted on the desert, possibly by men who were dying for a drink of the flood that was now rolling by and licking up the dry sands that had been baking for years. For ten miles or more the stream turned east and apparently carried them toward Yuma again; then it suddenly broke through a sandbank and spread out over the desert, flowing in a northerly direction, and covering the desert as far as the eye could see. Drifting along they came to a place where several streams joined forces, forming a series of falls; then came more lakes and streams. At some points the banks were 300 or 400 feet high, showing that the water had cut through in former years. Great masses of sand and earth were continually falling from the banks, crashing into the water, that was here rough and

The Salton Sea.

abounding in dangerous whirlpools, one of which completely capsized the frail craft, rolling it over and over, destroying much of their provisions. A lake at least twenty miles square was found, from the surface of which protruded the tops of mesquite trees. For twenty miles the expedition followed this river, meeting upon its banks Mr. E. L. Swaine's expedition, sent out by direction of C. P. Huntington, president of the Southern Pacific road, who was making investigations for the benefit of the Bureau of Irrigation Inquiry of the Agricultural Department at Washington. A few miles further on the roar of a waterfall struck the ears of the explorers, and coming to it they found a sheer fall of eighteen feet. This stopped their progress, and the flat-bottomed boat was landed upon the bank. There a singular occurrence took place, illustrating the rapidity with which the earth or sand washed away. The party camped here all night, and in the morning found that the falls had traveled half a mile up the stream, leaving their boat in comparatively smooth water, but with velocity that carried them forty miles or more, at a rate altogether too rapid for pleasure. This was the last experience, as the stream led into Salton lake, where losing the current, they drifted aimlessly, and finally became stranded in the mud, a predicament which the plucky chief, Mr. Patton, had anticipated and dreaded. Out of the boat they jumped, sinking waist-deep in quicksand, and began pushing their frail craft along under the terrific heat of the sun 120° to 130°, which sent clouds of vapor upward, telling of the enormous evaporation. The adventurers landed in many places en route, and with a Kodak, took pictures of deserted Indian villages, the falls of New River and various points of interest, and finally reached the Salt Works in safety, after having made one of the pluckiest voyages ever attempted in America.

The trip of Mr. Patton, made in the interest of the *Examiner*, was one of discovery and adventure. This was followed up by the party previously referred to, organized by the Southern Pacific Company. The latter made many interesting observations that will be especially valuable from a scientific standpoint. They settled the question of danger to the Southern Pacific road, showing conclusively that the water would have to rise at least ten feet above its highest point before it encroached at all upon the line of the road. The formation of the desert sea was so startling that many sensational stories went abroad, and west-bound tourists were led to believe that there was danger. On the contrary, the road is perfectly safe, is ten feet above and not near the sea, which in point of fact adds materially to the interest in the desert, and will undoubtedly attract much attention during the coming winter from the tourists.

The Southern Pacific expedition started July 11 from Fleming Wells in a mule team to investigate the borders of the sea. After a number of attempts they succeded in getting a rope across the river and transported their instruments over on a boat made of two air-tight kegs and the endgate of a wagon, and fully examined the adjacent country, which resulted in a number of interesting aud valuable tables. They found that the highest water in the Colorado was thirty-three feet in February, 1891. The flow at Yuma, with a twenty-foot gauge in July, 1891, was 35,000 cubic feet per second. The water first appeared at Salton June 22. Other interesting points are found in the following tables:

TABLE OF ELEVATIONS.

Lowest elevation of Southern Pacific track, underside of ties, 267.9 feet below sea level.

Length of track 267.9 feet to 250 feet below sea level, 28.4 miles.

Length of track 250 feet to 200 feet below sea level, 9 miles.

Length of track 200 feet to 150 feet below sea level, 6.9 miles.

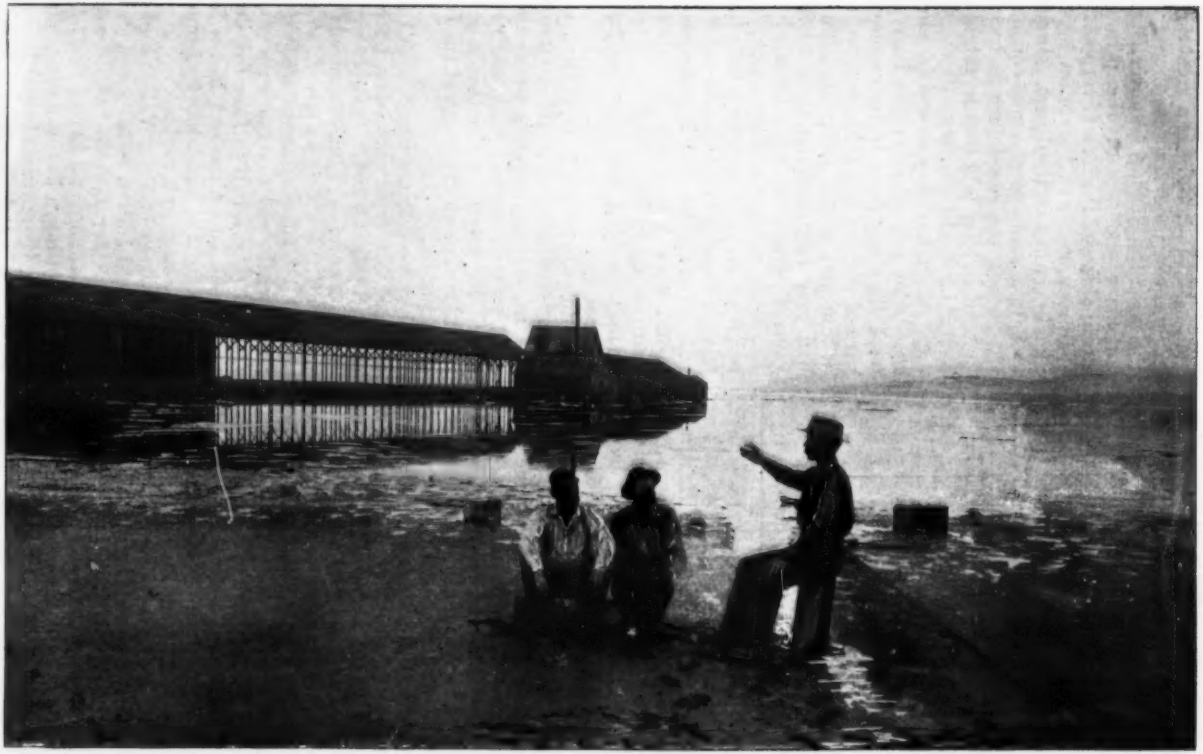
Length of track 150 feet to 100 feet below sea level, 6.3 miles.

Length of track 100 feet to 50 feet below sea level, 5.3 miles.

Length of track 50 feet below sea level, 4.4 miles.

Total mileage below sea level 60.3 miles.

Lowest toes of railway bank slopes at a few narrow points west of Salton, 271 feet.



Salton Sea—Showing Salt Works.

Lowest toes of slopes in general across low ground east and west of Salton, 270 feet.

Bottom of lake at lowest point about 3 miles south of end of salt spur, 280.8 feet.

EVAPORATION AND HUMIDITY OBSERVATIONS NEAR SALTON.

Evaporations measured by means of a floating can. Humidity determined by dry and wet bulb methods.

Date.	Hour.	Wind.	Inches evap'rtd in 24 hrs.	Humidity per cent.
July 6...	7:00 A. M.	S. light	0.57	....
July 7...	7:00 A. M.	S. light	0.57	....
July 8...	8:00 A. M.	S. light	0.57	....
July 9...	8:00 A. M.	S. light	0.25	....
July 22..	7:30 A. M.	....	....	52.4
July 22..	9:45 P. M.	....	....	31.9
July 22..	1:00 P. M.	....	0.37	....
July 23..	1:00 P. M.	....	0.25	....
July 24..	1:00 P. M.	....	0.25	....
July 25..	1:00 P. M.	....	0.25	....
July 27..	1:00 A. M.	S. E. light	0.20	....
July 29..	1:00 P. M.	S. light	0.38	....
Aug. 7 ..	1:00 P. M.	S. light	....	25.4
Aug. 10..	1:05 P. M.	S. brisk	....	34.9
Aug. 13..	1:45 P. M.	S. light	0.38	....
Aug. 14..	1:45 P. M.	S.W. strong	0.38	....

The notes of the photographer, which I sent out at the request of THE CALIFORNIAN, are of interest. He writes:

I took the overland train from Banning to Yuma, arriving there at four o'clock in the morning, and by the time I had my plates changed for making photographs of the river at this place it was daylight. After breakfast I started to look around the place and form some idea about how much water there was in the river, and as near as I could judge it was some three hundred feet wide and from ten to twenty-five feet deep, and running very swiftly. Certainly an abundance of water to fill the whole of California up in time, and I learned from residents of Yuma that the Colorado River had been lower this year than for a number of years back.

The gentlemen of Yuma have a novel way of keeping cool, wearing shirts similar to the ladies' Mother Hubbard, and wearing them loose, excepting when the train comes in. The shirt is made of cloth something like mosquito bar, and certainly looks quite cool.

After making some views of the river from the Yuma bridge I left Yuma for Salton Station.

Salton Station has two houses and a depot and five inhabitants. The Chinese cook is one of the most prominent men in the camp, as he is an exceptionally fine cook, and as eating is the only pleasure at Salton, he is a great favorite with everyone who goes there. Mr. Durbrow, the General Manager, Superintendent and one of the principal stockholders of the New Liverpool Salt Company, is one of the finest gentlemen I ever met on the desert. He came to Salton some years ago a consumptive, whom the physicians had given up to die. They told him he might get well if he would go down on the desert. Well, to-day you see in him a man who can stand more heat and work than any man in his employ; a perfect picture of health, and to look at him you would never imagine he had ever been sick a day in his life.

Mr. Converse is the captain of the *Examiner* exploring expedition, and has lived on the desert for a long time, trapping and prospecting on the Colorado River. The first impression obtained when you arrive in Salton is that you are in San Diego or Catalina Island: nothing but water as far as you can see.

Salton sea proper is from twenty to twenty-five miles wide and about forty-five miles long, covering many thousand acres of ground that was never meant for anything else than a great inland sea, or an extension of the Gulf of California.

Going down to the beach, about five hundred feet from the depot, I found the sea strewn with newly sawed lumber, coming from hundreds of miles up the Colorado River, at the sawmills. The Southern Pacific Railroad switch was covered with water from two and a half to four feet deep, and about two miles out in the lake you can see the smokestack of one of the salt company's engines.

Dr. Murray of Palm Valley told me that an old Indian on his ranch stated that his father said the whole valley used to be damp and have a fine freshwater lake down in the basin around Salton, but the sea came in and drowned all the cattle, and after the sea dried up it left a great deposit of salt and killed

all the grass, and has never been of any use since.

Standing at Salton and looking all around you, and seeing the former outline of the old sea line, and knowing you are two hundred and seventy feet below the sea, certainly makes one a little nervous; I was probably made more so from the fact that all the Indians had left the salt works as soon as they saw the water coming in; so also did Mr. Durbrow's mules, which had never before left camp, but now it is impossible to keep them there without tying them. Mr. Durbrow was very anxious to keep the Indians at the salt works, but how to do so he did not know. Finally he thought of a little strategy that worked well. He sent for the chief, and asked him to go and get him a lot of squaws, as squaws were not afraid. He said he did not want men; they were no good; they were cowards, so he preferred squaws. Squaws "heap brave." Well, it worked. An Indian's only pride is his bravery, and to be compared to a squaw had the desired effect. They came back, firmly believing they would be drowned, but determined to show the white men they were not afraid. And to see these men at work piling salt, the thermometer standing one hundred and twenty in the shade, and every Indian perspiring so much you would imagine there was a garden hose playing on them all the time was interesting.

But one remarkable thing was to see those Indians, every one working with his face toward the gulf, expecting every moment to see the water come in a great body and fill up the entire basin, and wanting to get the first notice, so as to be in time to get away; if it was positively necessary to have their back in that direction, and to see them turn every moment and look in that direction, with a scared look on their faces was as good as a play. Mr. Durbrow stays by them all the time, knowing if he left for a moment they would become panic-stricken, and would leave for the mountains again.

MAKING RAIN.

By John T. Ellis.

THE entire country has been watching with interest during the past few weeks the operations of the little party of scientific men who have been carrying on a most novel series of experiments on the Llano Estacado of Western Texas, in the audacious attempt to compel Dame Nature to send rains upon that thirsty land at their will and bidding. The result of these investigations promises such great benefits to the agricultural classes that the farmers and ranchmen throughout the entire West have watched their progress with as much interest as has the scientific world. The prosperity of the agricultural classes means the prosperity of the country at large; and if it is possible to eliminate the greatest evil which annually threatens the farmer of the West—a long drought when the crops most need rain—then certainly it is to the interest of the people at large to make every effort possible to bring about that result.

Ever since the close of the civil war one man has steadily and persistently advanced the theory that it is possible to effect atmospheric conditions by artificial means, and that rainfall can be produced or increased by the concussions of heavy cannonading. This man is an enthusiast upon the subject, and he has spent a score of years and much money in disseminating his views and calling the attention of public men to their importance. No amount of ridicule could discourage him—his object was to benefit mankind, and with this worthy project in view he steadily persevered. This man is Edward Powers of Delavan, Wis., a civil engineer of wide experience and observation. In 1871 he published a book entitled "War and the Weather," in which, by a collection of very interesting statistics, he showed that in almost every instance great battles in which there has been heavy cannonading have been followed by copious rains. A notable instance to which he called attention was the battle of Buena Vista, which was fought on the 22d and 23d of February, 1847. This was in the midst of the dry season in Mexico and there had been no rain for several months before the battle. The occurrences upon the second day at Buena Vista, as stated by Bvt. Maj. Gen. H. W. Benham of the United States Engineer Corps, were as follows: From 8 to 9 in the morning of that day the artillery was engaged in heavy cannonading, after which, between 11 and 12 o'clock "a most violent shower of rain fell." Again in the afternoon the artillery reopened fire and again, after an interval of about two hours, "another violent shower fell." "And what was positive proof to me that these rains were the direct result of the artillery firing," writes General Benham, "was that no rain had fallen, as I was informed, for a number of months before this battle—I was told eight months, and none fell for three months after the battle, *as I knew was the case*, as I remained at the same station during that time."

The battles of Palo Alto, Molino del Rey, Cherubusco, Monterey and Chepultepec were also fought in the dry season, and each was followed by heavy rains. So it was with nearly every battle in the Mexican war, and so it was, according to the record which Mr. Powers has been at great pains to verify, with over two hundred battles of the late civil war in this country, including every important engagement. It is a formidable array of historical facts which Mr. Powers has brought together to support his theory, and it was his collection of these and his untiring efforts which primarily drew attention to the matter. It is but right, therefore, that the credit should be given to Mr. Powers for his zealous study of this question in behalf of the

farmer. That his motives were entirely unselfish is clearly shown by the following extract from his book: "The art of regulating the weather to some extent, if such an art should ever be acquired, is not one on which a patent could be obtained, nor would the business be one in which a monoply could ever be exercised by an individual. The experiments, when they are made, as eventually they certainly will be, should be made at the public expense, for, in the event of their success, it is the public which will be benefited."

"If, however, Mr. Powers' theories are correct, and, in view of the experimental tests which have lately been made, there can be little doubt on that score, he should go down in history in the front rank of that noble army of philanthropists who have devoted their lives for the benefit of their fellow men. The principles upon which Mr. Powers based his theories are those generally accepted by scientists as to the formation of clouds and the origin of rainstorms. The most important principle is clearly stated by Professor Silliman in his "Principles of Physics," as follows:

"Rain is generally produced by the rapid union of two or more volumes of humid air differing considerably in temperature, the several portions when mingled, being incapable of absorbing the same amount of moisture that each would retain if they had not united. If the excess is great it falls as rain; if it is of a slight amount it appears as a cloud. The production of rain is the result of the law that the capacity of air for moisture decreases in a higher ratio than the temperature."

Now, it is known that over a large portion of the United States there is constantly flowing from southwest to northeast a vast current of humid air, bearing the moisture which has been evaporated from the Pacific Ocean. This enormous stream of aqueous vapor is called the equatorial current. There is also another aerial stream called the polar current flowing over this country from the northeast in a direction nearly opposite to the equatorial current, which is invariably of a much cooler temperature than the latter. In the western portion of the United States the equatorial current flows uninterrupted in its course, but about the time it reaches the Mississippi Valley it comes in conflict with the cooler air of the polar current, and storms are generated by their mingling as described by Professor Silliman.

Applying this principle to the effect of cannon-firing Mr. Powers contended that the concussions produced by the cannonading deflected one of these currents from its course, and, from the mingling of the currents which followed, the storms which so invariably succeeded a battle resulted. Moreover, Mr. Powers held that this result could be effected at any chosen time by a series of heavy volleys of artillery-firing.

It was Mr. Powers' plan for Congress to vote an appropriation sufficient for defraying the expense of taking 200 siege guns from the United States Armory at Rock Island, Ill., to some dry region of the West and there firing one hundred rounds of blank cartridges from them. The estimated expense of such an experiment was so great ($80,000), however, that Congress took no action in the matter.

In 1876, General Daniel Ruggles of Fredricksburg, Va., advanced the proposition that instead of firing cannon on the ground, explosives be carried to a considerable height by means of balloons, and there exploded in the midst of the upper air currents which it was desired to affect. By this means a great conservation of force would be effected and the effect a great battle would have upon the upper currents could be reproduced at a comparatively small expense. General Ruggles succeeded in securing patent rights upon his plan of elevating the explosives, but it subsequently transpired that the scheme had already been fully described in a Chicago

paper, which copied an article on the subject from the Mimora (New Zealand) *Star*, and so General Ruggles' letters patent became worthless.

However, the economy of expense effected by General Ruggles' suggestion made it possible to bring the matter before the consideration of Congress and this was done several years ago by Hon. C. B. Farwell of Chicago, who had long been interested in the subject.

In 1890, Mr. Farwell obtained an appropriation of $2,000 for use by the Department of Agriculture in investigating the subject, and the last Congress added $7,000 to this amount for a series of practical experiments in the West.

General R. G. Dyrenforth, a well-known Washingtonian of broad scientific attainments, was appointed by Secretary Rusk to prosecute these investigations, and during the last five months he, in company with Dr. Claude A. O. Rosell of the Patent Office and other Eastern scientists, having been making a careful study of the subject and planning apparatus and methods of operation. Among the improvements and innovations suggested by these gentlemen was the use of explosive gases in balloons, instead of the raising of heavy explosives with lifting balloons, thus economizing on the first expense of apparatus and greatly reducing the cost of explosives. The gas proposed is a mixture of oxygen and hydrogen in the proportion of one to two, which constitutes one of the most violent explosives known to science.

On August 5, 1891, General Dyrenforth arrived at Midland, Texas, a small desert station on the Llano Estacado, having a carload of apparatus and materials for the manufacture of explosives, and accompanied by a party of distinguished scientists, among whom were Mr. Edward Powers and Dr. C. A. O. Rosell. The apparatus was set up on the "C" ranch, twenty-five miles north of Midland, where the expedition was entertained as guests of the owner, Mr. Nelson Morris of Chicago.

In reaching the ranch the party was driven over miles of brown, parched prairie land, where an allowance of twenty acres to one head of cattle offered but a scant subsistence. Scrubby mesquite brush and a cactus here and there is the only vegetation that breaks the monotony of the scattered clumps of mesquite grass on these plains, while the sole water supply is obtained by windmill pumps and bored wells. No rain had fallen in this locality for three months, and little for three years

It was with a full knowledge of these conditions, and because they wished to experiment in a region where they could not be deceived by coincidences, that General Dyrenforth and his party came to this locality.

The three principal operations were made upon August 9th, 18th and 25th, respectively, while an almost continual "skirmish" of light explosions was maintained during the intervals between these dates, in order to keep the weather in an unsettled condition. During the seventeen days of the experiments three heavy rains, of several hours duration, fell upon the "C" ranch—one following by a few hours each of the three principal operations, and light showers fell almost daily during the continuance of the light firing.

The method of operation was as follows: Balloons of ten and twelve-foot diameter, capable of containing six hundred and one thousand cubic feet of gas each, respectively, were first filled one-third full of oxygen gas by connecting them with retorts containing chlorate of potash and a small quantity of binoxide of manganese. When these retorts are subjected to intense heat in gasoline furnaces constructed for the purpose, the potash is melted and passes off in the form of oxygen gas. The gas is made to pass through water charged with lime and caustic soda to cleanse it from clearine and other dangerous impurities, and then passes into the balloon. When a balloon has received a sufficient amount of oxygen it is detached from the retorts and connected by pipes

with the hydrogen generators, which consist of large tanks containing water and several hundred pounds of cast iron borings on the bottom. Into these tanks sulphuric acid is decanted from glass carboys, or lead-lined drums, and by its action the water is decomposed into its elementary gases—hydrogen and oxygen. The iron takes up the latter, allowing the hydrogen to escape through a wash-barrel of lime water into the balloon. When the inflation of the balloon is completed an electric cap is inserted in the neck, insulated wires are attached and the balloon is allowed to rise to a height of one to three thousand feet. When it has reached the desired altitude the wires are connected with the binding posts of a dynamo discharger, the handle of the machine is pressed down, an electric current speeds along the wire and explodes the cap. Suddenly the balloon is transformed into a ball of flaming fire, which instantly expands to mammoth proportions, and then as suddenly vanishes, leaving a thousand small fragments of the balloon envelope floating away on the breeze. They did not have time to ignite, the flash was so sudden, and if we followed them till they fluttered to the ground should find that the white cloth had not even been blackened in the least. Hardly has the observer recovered his breath from the grandness of the spectacle when the tremendous explosion comes rushing over him, a mighty tidal wave of sound, which shakes the earth with its concussion, and rolls thundering off over the distant swells of the prairie.

While the balloons are being filled and exploded large quantities of dynamite and rackarock powder are being fired in heavy charges at various points on the plains, and at each explosion, though it may be a mile away, the force of the concussion flattens in the sides of the balloons and they flap out again with a sharp snap against the netting.

The commotion is kept up for several hours, *and as yet rain has not once failed to follow.*

On the day of the last experiment at the "C" ranch, the 25th of August, at half-past three in the afternoon, the barograph or registering barometer was describing the usual curve, indicating "dry" weather for the next twenty-four hours, while the wet and dry bulb hygrometer, a very accurate instrument—brought from the Weather Bureau Instrument Room at Washington—showed a relative humidity of only 16 out of a possible 100—a most unusual and unfavorable condition. The humidity at that locality generally ranges from 45 to 65, while in San Francisco a humidity of 80 to 90 is not a very unusual occurrence. The day was clear and the Weather Bureau foretold fair weather for that region. Every indication and condition was as unfavorable as could be found.

At noon of the 25th the firing was begun. Balloons were sent up at intervals of about one hour during the afternoon, while heavy charges of dynamite and rackarock were fired at shorter intervals upon the ground. Altogether about 600 pounds of ground explosives and 3000 cubic feet of oxyhydrogen gas was used.

The firing ceased at 11 P. M. and at 3 A. M. the experimenters were awakened by the flash of lightning and crash of thunder. The rain fell in torrents from 4:30 to 8 o'clock A. M., and the night operator at Midland station said he never had seen so much lightning before. Altogether this last experiment was a grand success and demonstrated almost beyond a question the practicability of the artificial production of rainfall in the most arid regions.

The expedition has now removed its apparatus to El Paso, Texas,* where, at the time of this writing, preparations are being made to proceed with the experiments before a large gathering of prominent citizens of Texas, Arizona and New Mexico and a distinguished commission of Mexican officials and scientists from Chihuahua and the Mexican capital. As General

*These experiments have been followed by rain in almost every instance.—ED.

Dyrenforth's party drove from the "C" ranch to the station at Midland the appearance of the country formed a pleasing contrast to their first view of the staked plains. Instead of stirring up clouds of choking dust the carriages spun lightly over a moist and hard-packed road, while in place of the brown and barren desert, which had given them comfortless welcome on their arrival, a green meadow stretched out in every direction as far as the eye could reach, promising comfort to the ranchman's herds and forming a scene of solitary beauty.

Questions of the Day.

THOSE who are in a position to judge, who can grasp the situation as presented by the Pacific slope as a whole, cannot fail to be impressed by the fact, that, while this region has been prominently before the nations of the world for years as an important commercial and industrial center, it has, in point of fact, just begun its actual development, and during the next decade is going to make the real advancement which shall make it an empire in all the name implies. From one end of the Pacific Coast to the other, growth, development of resources and increase in values is apparent, and when it is considered that Oregon, Washington and extreme Southern California have but recently passed through a remarkable period of inflation, the growth is more remarkable. The traveler from the East or Europe has read of the "boom" and its dire results, but on visiting the west coast cities nothing but prosperity is noticeable, the truth being, that while property was rated high, the climate and agricultural possibilities in the various regions are extremely favorable for the maintenance of a large population, and new settlers are pouring in from every land under the sun. The value of land may have been exaggerated, but the possibilities of the Pacific slope have not been, and this is the magnet that will, in a few years, build up a competitor to the East in every branch of industry, art, science or trade.

The article in the present issue by H. N. Rust, U. S. Indian Agent, is of peculiar interest, describing as it does one of the most interesting and remarkable events of the century — the return of water into what is evidently the bed of an ancient sea of no little magnitude. The overflow has made a large lake in the Colorado desert, but whether it will remain is a question that can hardly be decided at present. The point of especial interest is whether the enormous evaporation will result in a change of climate in Southern California, giving San Diego and San Bernardino counties a damper climate in summer and possibly a colder one in winter. Authorities differ on this point, but either the sea has affected the country in the vicinity of San Gorgonio, or we may chronicle a remarkable and singular coincidence The present season at Beaumont and in the adjacent mountains has been marked by phenomena never observed before by the oldest inhabitant. It is true that Southern California has light showers every summer and masses of clouds are seen along the mountains, but cloudbursts and terrific rains have been unknown up to the present time. During twenty-four days, ending August 25, there were not less than five cloudbursts, while rain fell every day at Seven Palms, that prior to the appearance of the lake has been exempt from rain storms at this season. The temperature has been remarkably low, and severe storms have been the rule. To those who are familiar with the country there is something more than coincidence in this. Whether the Salton sea will become permanent can only be settled by time, but if there is any possibility of its interfering with the pride of the south, its climate, we may expect to see an army of Southern Californians marching on the Colorado break, to turn the water back into the original channel.

Concerning the report that the land on the desert was sinking, thus allowing the water to pour in from the gulf, the explanation given by Mr. Rust in a personal letter to the editor is interesting. He says: "My own belief for years is that the entrance from the gulf into this desert basin was closed by natural causes, principally the debris of the Colorado at high water forming a bar across the inlet from the gulf, shutting out tide water. At low water the winds may have raised this bar still higher, thus forming a dam sufficient to keep the gulf water

out entirely. Evaporation or seepage in time reduced the salt sea to the Salton basin, and in the end left the immense deposit of salt there, which is now the only value of the desert. Now, I see the Colorado has deposited so much debris at its mouth that it has found a lower level in its low western shore, and in several places has found its way into the Salton basin and is now replacing the inland sea with fresh water. This water in turn is dissolving the salt deposited by the evaporation of the old sea, and we now find Colorado water in Salton basin is gradually becoming salt water. Should the Colorado continue to flow through the crevasses already being continually deposed by the rush of water over a fine alluvial soil, it is natural to expect the Salton sea will find the level of the inlets of the Colorado. Should this bring the level of the new sea to that, or near that of the old sea, as it will be likely to, when the great overflow of the Gila and Colorado occur, a small excavation of the bar which now excludes tide water would permit the tide to come in and the overflow of the Colorado and Gila would run into Salton lake, and so on to the ocean. This, I believe to be a desirable end. General J. C. Fremont and others have urged that this be accomplished by the help of Government. Wise men without knowledge have told us it was impossible—that evaporation would cause all the water of the Colorado, if turned onto the desert to disappear. Nature and the Colorado have proven the fallacy of such statements. I believe it very desirable that these waters should cover the desert. That no party except the salt works and the Southern Pacific Railroad would be damaged by it, and an immense area of land and mountain waste would be benefited by it; its climatic influences may be supposed to be beneficial and very wide in extent, far outreaching the damage done to the railroad and salt works. The railroad would only be obliged to remove some miles of track over an inexpensive, nearly level country, and the discomfort of desert travel would be a thing of the past. Local business would soon make up to the road the loss of the $40,000 annually received by them for transporting the salt, and new salt mines are abundant between this line of road and the Santa Fe line in the Mojave district, north. The foolish statements made by rival roads East, of the danger to travelers coming to California by the Southern Pacific Railroad on account of this great natural phenomena have no foundation in fact. On the contrary, every lover of nature will be interested in visiting the country by this route, as he will be enabled to see for himself one of the most notable and rapid changes wrought by nature in our own time. He will pass the volcanic springs on the desert, which are to be lost to us in the bosom of the new sea. Such changes have seldom come in our country in a lifetime. I believe it desirable that this State or the general Government should at once send a reliable corps to make a careful survey of the river and to note its conditions from the upper inlet to the Salton sea to its mouth, and if desirable take steps to bring the water of the gulf into the Salton basin."

A facetious report from the East gives it that a new magazine is to be established, which is to present the indulgent reading public, each month, with an array of articles, all of which have been studiously rejected by editors of other magazines, the idea being to show the amount of good things which are lost to the reading public each year, and, perhaps, pluck some shining literary light from possible oblivion. This is an ingenious scheme. The magazine could possibly exist on a subscription list of the 100,000 or more disappointed contributors, but why not act on a suggestion which the writer heard discussed? It was proposed to establish a publication reversing the order of things. Instead of paying for articles, the editor would charge for them. Thus the editor would write: "The *Polyglot* accepts your article for publication. The charge for insertion will be $10 per page. Fifty copies of the number containing your article will be sent you on publication." The advantages of this are evident. The thousand and one contributors who cannot write, but merely desire to see their names in print, will be gratified. Circulation need not be pushed by the publisher, as the copies would be given away. Each writer would naturally, to satisfy his pride, give away a large number; hence, a circulation would be obtained, nolens volens, and, as a result, the magazine would have a certain value to the advertisers. This idea is commended to the originator of the rejected manuscript plan.

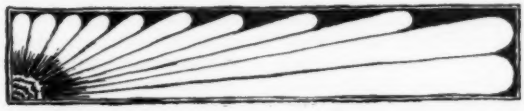
It was generally supposed that slavery was abolished in America years ago, but the fact remains that wherever the Chinese have obtained a footing, women and children are bought and sold, and treated in a manner that would put to shame the worst details of ante-bellum negro slavery. In San Francisco a little band of God-fearing women are fighting this evil single-handed and alone.

They have rescued over two hundred girls, from eleven years of age up to twenty-five, from a life of such horror that it is difficult to describe it in fitting language. These women are working under great disadvantages. They are so crowded in their quarters that they cannot properly care for their rescued charges. Here is a field for the wealthy philanthropist. An adequate building is needed for the purpose, and should be had for the asking, so commendable is the object.

The number of individuals in the United States who are continually starting new publications, and who think they can succeed where others fail, is somewhat remarkable. A correspondent in Tombstone, Arizona, asks the advice of THE CALIFORNIAN as to the chance for a new weekly in San Francisco, where *The Wave*, *The Argonaut* and several others well fill the field. The incident illustrates the fact that, in many instances, people in looking for openings in business fail to observe opportunities in their immediate vicinities, which, if taken at the flood may lead on to success and many subscribers. To the Arizonian we would say that the very best of openings awaits his acceptance in his own town. It is a well-known fact that an Eastern publication has, for several years, amused itself and its readers by reciting, weekly, warlike occurrences in Arizona, which are supposedly taken from an Arizona paper, the *Arizona Kicker*. The *Kicker* is, of course, a figure of the imagination, but so industriously has it been worked, from every point of the compass, as Mr. Pecksniff observed and penciled the famous Salisbury Cathedral, that not a few people actually believe that the *Kicker* is a reality. The situation at present is that the good people of Arizona are up in arms at this joke long drawn out, and it is reported that several tourists have been shot for innocently inquiring for a copy of the *Kicker* while the train was stopping at Phœnix. Our correspondent possibly sees the point without further urging. It is to establish at Phœnix or Tombstone a real *Arizona Kicker*, which will at once reap the benefits of the years of advertising given it by the Eastern paper. That the good people of Arizona will rally about the new publication our correspondent may rest assured.

The old missions of California are among the most attractive features of this country to the average tourist. They are the only American ruins, and will, like wine, increase in value as time rolls on. The owner of these relics does not appear to appreciate their value, and many are slowly going to decay. Until within a few weeks the chapel of the magnificent old pile, San Juan Capistrano, was a disgrace, the church utterly neglecting it. Private parties have now repaired it. San Luis Rey is fast disappearing and in a few years will be destroyed. Is there not sentiment enough in California to create a society for the preservation of the missions? They should not be allowed to fall to decay, and some means should be devised to put a stop to the vandalism which forms a part of their every-day history.

Proposing gravely to prepare an article for THE CALIFORNIAN on the Pacific Coast defenses provided by the National Government, the writer found it a difficult task, as there was from San Francisco to San Diego, absolutely nothing to write about. The entire water front with its valuable cities, orchards and ranches, is *sans* guns, *sans* troops, *sans* batteries, *sans* everything that should be, and in the meantime the patient dwellers on the Pacific Slope, without Cabinet representation at Washington, are wondering when their investments on this coast are to receive adequate protection in case of war.



NEW BOOKS

IT is gratifying to note the increased production of books on the Pacific slope. The "Picturesque Californian" of The Dewing Company; the rich productions of The Bancroft History Company; the works of J. Stuart & Co. and others, all suggest that the time is coming when the Pacific slope will, if not rival the great Eastern centers of the publishing interest, be able to fairly compete with them in the production of books of a high rank, not alone in the literary excellence, but in the art of production. Among the recent publications of The S. Carson Company of San Francisco is a little work entitled "Forensic Eloquence," a treatise on the theory and practice of oratory that deserves more than passing mention. The author, John Goss, A.M., has produced a work that is a valuable addition to the literature of the subject, and one which should be a useful adjunct, not only to school work in this direction, but to public men and others, who are desirous of improving their style in public speaking. The author presents the student and reader with many oratorical gems, and says: "My purpose in the present work has been to examine each speech by itself, and from it alone to obtain safe directions for the beginner. Following this plan, it will be found that every good speech has a proper opening, a clear statement of propositions to be discussed, and closes with a well-worded peroration. It will be found, also, that these three elements go hand in hand together; if any one of them be wanting, the effort will not be up to the standard of a great speech. I have drawn on the greatest orations of ancient and modern times to sustain this view, and if the selections do not bear me out in this method, the reader is at liberty to discard the description and adhere to the model." In the ten chapters the subject is traced from the earliest times until the days of Clay and Calhoun, and a forcible presentation of the subject made. The work can be commended without reservation.

MILLIONAIRES OF A DAY.—There are few books of the day which anyone dare say will outlive the year of their birth; but of Mr. Van Dyke's last work, "Millionaires of a Day," it can be safely said that it will not only be read but reread as long as California interests the rest of the world. It will be read as long as any of the "boomers" of 1886-88 survive, and by their children after them. And in every time of unusually rapid growth on this coast it will be read by many, and should be read by all, who incline to dabble in real estate for speculation. It should be read by all who intend to invest in real estate anywhere. "Millionaires of a Day" stands alone among books in California and cannot be classified. It is not only the first thorough description ever written of that peculiar phenomenon of human nature known as a real estate boom, but it has for its subject what was beyond doubt the greatest and craziest boom that ever swept over so great an area and ruined or crippled so many people who prided themselves on their shrewdness, and who had, in fact, been successful in other ways. Although it describes those times so faithfully that every ex-boomer thinks he is especially meant by some one of the different characters introduced, and though it is so filled with warning and good advice to future investors as to make it of philosophical as well as historical value, it is yet so filled with local coloring; California so breathes from every page; its advantages, attractions and peculiarities are so interwoven as a background to the play, that, as a description of the country, it is scarcely inferior to the author's well-known "Southern California," which has been so much admired in this country and Europe. The style is rapid, yet piquant and smooth; the action moves before one like that of a attractive panoroma, and the reader is unconscious of any effort. The interview in the first chapter with the old-time, lazy, shiftless settler is a classic in its line, with the advantage of literal truth. The book should find a place in every library. Fords, Howell & Hurlbert, New York, publishers.

VOICE CULTURE AND ELOCUTION. By William T. Ross, A. M.—Even those who are not of the profession, and, there-

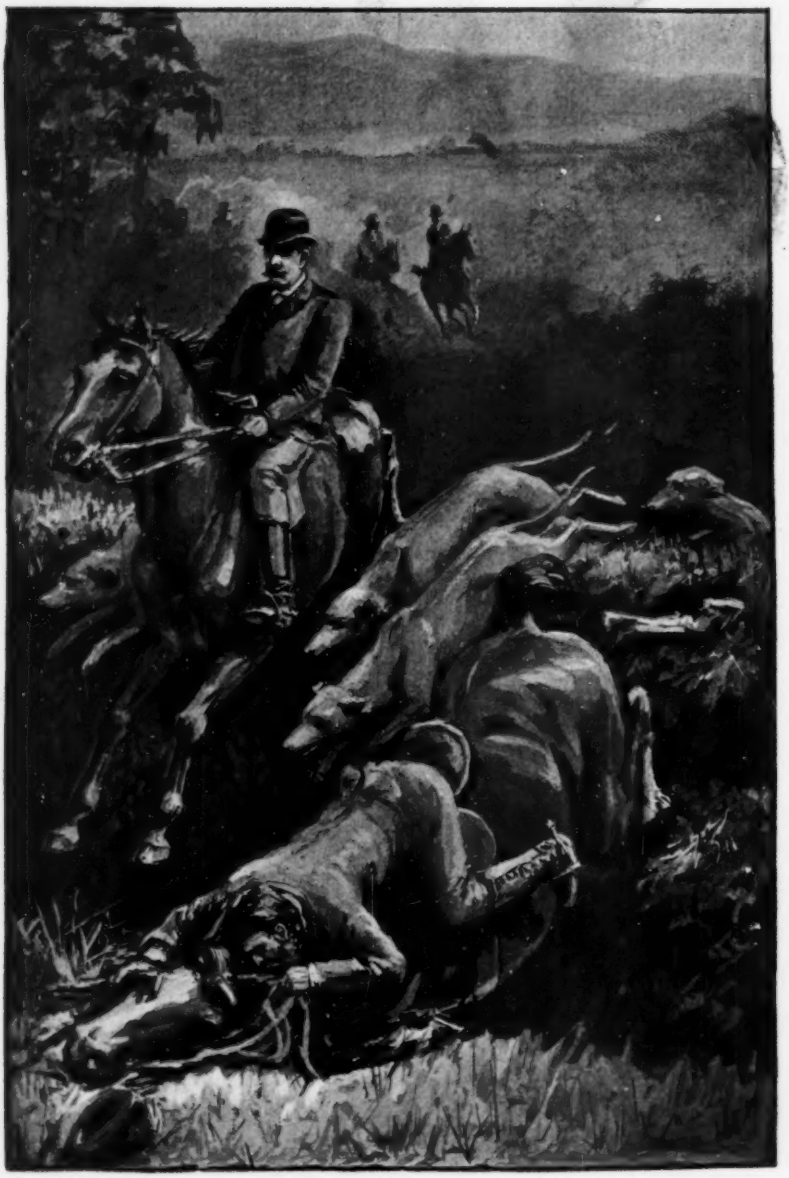
fore, do not surely believe that elocution is the chief end of man, may profit largely by a study of this manual. It is not an infallible evidence of the value of a book that it has passed through several editions, but in the case of a text-book the fact may be regarded as fairly conclusive, and especially so in this instance, when the work has gone the round of many institutions, and received the commendation of elocutionists themselves who, as a class, are not remarkable for their enthusiasm over the achievements of their fellows, however well pleased they may be over their own and unhesitating in declaiming the fact. The work before us is now in its fifth edition. It is in large use in schools and colleges, and is likely to be still more widely spread as the attention to voice-training gains ground. We know of no better manual to put into the hands of teachers and students than this. We may add that no institution of learning can consider itself entirely, completely equipped that does not provide instruction in elocution. Mr. Ross has long been known as an earnest and assiduous follower of the natural system of cultivating the vocal organs. Let him define the idea in his own language: "Elocution," says he, "does not consist in mere imitation of the voice and manner of the teacher. . . . Its province is to teach the pupil the art of using the rules and exercises of elocution, not as the end and aim of the study, but as the means for the better expression of thought and emotion. By such a course of instruction the individuality of the student is best preserved." Wise words, these, and to be carefully considered by all professional elocutionists. Never, it seems, was there greater need of the study of certain branches of what our author calls "The Art of Vocal and Physical Expression" than the present day. This must be the case, as society becomes more complex and exacting, thought and expression to convey thought more varied, and when, as is invariably the habit with all advance, there is a return movement in this instance of loose speaking and indifferent articulation. Take reading aloud, for inample. We might take issue with Mr. Ross when he writes under the division—Style: "More practice is needed in the colloquial style of reading and speaking than in any other." But we entirely agree with him when he adds: "There is far too much declaiming in the declamatory, too much dramatic in the drama, and not enough talking anywhere." It seems to us that the tendency of "the colloquial," especially in reading, is to get the better of the simple, the spontaneous, the natural. Readers, professional or otherwise, are prone to emphasize, to elucidate, to make plain by stress, manner or intonation, or in whatever way they think to impress. They lean too little to the listener, or to the imagination, or to the text, which, if it is worth reading at all, speaks, though it may not articulate, for itself. Under the heading "Emphasis" we read: "Emphasis is relative, not absolute. There is no such thing as *emphasis*, and *not* emphasis in reading and speaking. *All* thought that is voiced is relatively *emphatic*. The *difference* is only in *degree*." We may here remark that Mr. Ross' directions are like these already cited, suggestive, clear, and pointed, while his illustrations are equally satisfactory. It remains to say a word regarding the selections forming nearly one-third of the book under consideration. It has always seemed to us that in a work of this kind, quotations and extracts should be of a high literary character. As a rule, the standard is well maintained in this little volume, although one might wish some contributions removed that were, we are told, written expressly for "Voice Culture." The specimens are of that common and unhappy order whose inspiration is the old tramp or some other form of illiteracy, wherein the colloquial is pursued in these instances to the bitter end. But the compiler doubtless knows his public, and, probably, has gathered much material together chiefly for purposes of recitation and elocutionary drill. One finds many old, but still most serviceable, pieces of both literary and declamatory oratorical value, prose as well as verse. Among the newer insertions, one of the best from every point of view is Madge Morris' "The Golden Gate." The long poem entitled "Lasca," by Duprey, like Joaquin Miller's early efforts, is full of power and a strange pathos. It has the true Western flavor, too, though it is not the Californian. An admirable selection is George McDonald's "The Wind and the Moon," a charming little fantasy, that may be of real benefit in more ways than one to the child who has to learn to recite it.

Books on temperance are not rare, but the story of the "Saloon Social Life and the Insane Asylum," by A. C. Rawson, will constitute a new departure in this direction. The interest in the work lies in its realism. The author was a victim to the habit of alcoholism, and while a man of nerve and fine business habits became a complete wreck and was placed in the asylum at Stockton at his own request. When he recovered his

health and reason, and in these leisure moments began to think upon the relation of intemperance to insanity, as illustrated by his own case and that of others, the subject grew upon him, and seeing an opportunity to do good, he wrote the present volume, which is a telling sermon in favor of temperance, as the actual experience of the author. The book carries a weight which few books have, and becomes at once a valuable medium for temperance workers. Mr. Rawson deals with the alcohol habit in a way that appeals to those who have made a study of the subject from a medical standpoint. He assumes that a drunken man is insane, and that the habit, if continued, must become a taint that can be handed down from generation to generation, becoming the cause of the same habit, or insanity. The story is graphically told, many portions showing fine dramatic feeling and expression. The book is unique in its way, and a valuable addition to the literature of the subject. The volume is handsomely illustrated and bound. It is published by J. Stuart & Co., San Francisco, and sold by subscription only.

Among the Pacific Coast writers, Mr. Leigh H. Irvine, author of the "Iron Highway," "Labor Problems," and others, is attracting attention throughout the country, by the strong and masterful manner in which he is placing the various labor and other problems before the people. It is often a fact that labor reformers and writers who address themselves to the wage-earner fail to make themselves understood by the very people to whom they appeal. Mr. Irvine is an exception to this, as not only his works show, but his public addresses, especially the four nights' debates with Nationalists and Henry George men, in Oakland, in this State. Mr. Irvine's last book, "The Struggle for Bread," has already reached the welfth thousand edition, and is one of thet best and most logical presentations of an important subject we have seen. It is rarely that we find a man who can write logically and gracefully; who can lend a charm to statistics and who is equally at home on the rostrum. The decade is one of advancement all along the line; it is equally prolific in its production of wild-cat schemes, for the expansion of human interests, and consequently the army of theorists and pseudo-cranks is a large one. It is refreshing then to find, among the younger men, one who can represent the rising generation, either in the professions or the field of labor, and point out in so forcible a manner the many fallacies of the day. Mr. Irvine's book should be read, and well read, by those who take Mr. Bellamy very much in earnest and who are disposed to devote all their energies to the land schemes of Henry George. The Struggle for Bread. John B. Alden, New York Publishers.

Numbers of books on the Sandwich Islands have appeared from time to time, but Anne M. Prescott's Hawaii, comes with a more than ordinarily fresh aroma of the islands of the sea. The author has not written from the standpoint of the tourist who has made the regulation trip against time, but spent many years in Hawaii, and in a little volume, attractively bound, gives the impressions of her life in a locality that is of especial interest to this country. A brief history of the island is given in the chapters on the various points of interest which whet the appetite and increase the desire of the reader to visit the spot described. The book is neatly printed and is published by the San Francisco firm of C. A. Murdock & Co.



Taking the Hedge and Ditch.